

Help for the Man Who Wants to Build



Model Demonstration Home—Six Rooms Complete \$5500

A Group of Selected Plans for Small Homes

Long

The plans shown in this book have been selected and reprinted from The Home Builders' Clinic, a home building feature appearing exclusively in The New York American. The Clinic is conducted for The AMERICAN by The Architects' Small House Service Bureau of the United States, Inc., controlled by The American Institute of Architects, and endorsed by The Department of Commerce, United States Government.

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Lee



THE plans for small homes illustrated in this book have been selected and reprinted from the Home Builders' Clinic, newspaper home building feature appearing exclusively in this paper in this city.

The Home Builders' Clinic is conducted for this paper by The Architects' Small House Service Bureau of the United States, Inc., controlled by The American Institute of Architects and endorsed by the Department of Commerce, United States Government. The Small House Service Bureau is a national organization, composed of architects living in all sections of the country. It is a non-profit making organization and set up to provide people with limited incomes an opportunity to secure professional service, well designed home plans, counsel and advice in matters pertaining to small home building, and at low cost. This service is limited from three to six room houses.

In presenting the Home Builders' Clinic to the readers of this paper we do so with the belief that our readers will enjoy the opportunity of having their home building questions answered, without bias, by professional men and that the plans and news matter which appear will offer helpful suggestions in home building matters.

Working drawings, bills of materials, specifications and forms of agreement for these plans are obtainable from The Small House Service Bureau at nominal cost.

The New York American

This Service Edited by
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and
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for
The Architects' Small House Service Bureau
of the United States, Inc.

A Group of Selected Plans for Small Homes

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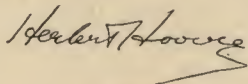
Endorsements

I HAVE looked into the work of The Architects' Small House Service Bureau of The United States with its divisions and branches and have examined its organization and incorporation papers.

The complete plans, specifications, documents and bills of materials with the designs worked out for local conditions and to use stock materials and eliminate waste materially simplify home building problems.

The form of control by The American Institute of Architects should guarantee a high standard of service.

It gives me pleasure to endorse this work and to assure you that the Department of Commerce will do all it can to co-operate with the Institute and the Bureau.



Secretary,

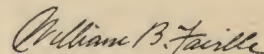
Department of Commerce, United States Government.

THE wider field of activity and the increased usefulness of the Architects' Small House Service Bureau by the creation of new Regional Bureaus, during the last year, is most gratifying.

This activity was warmly indorsed by the convention of the institute and the Bureau's activity, I am sure, will become more and more appreciated by persons who previously have felt that architectural service for the Small House was unavailable.

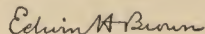
Wishing you unqualified success in this field of professional usefulness, I am,

Very truly yours,



President,
The American Institute of Architects.

THE Architects' Small House Service Bureau of the United States, Inc., has been established under the plan presented to The American Institute of Architects in convention assembled at Washington, D. C., May 5th, 1921, and there accepted and approved. The regional bureaus now established are operating strictly in accordance with the plan submitted to the convention by the committee on small houses.



Chairman, Committee on Small Houses,
The American Institute of Architects.
President of The Architects' Small House
Service Bureau of The United States, Inc.

HELP FOR THE MAN WHO WANTS TO BUILD

FACTS OF FIRST IMPORTANCE IN PURCHASING LOT

If property is increasing in value each year, this shows a healthy condition. Such property may prove a good investment if not overrated.

Find out whether you are expected to make improvements, whether there are restrictions, or whether you may be assessed for new sidewalks, curbs, gradings, roadways. Investigate the possibility of railroads, trolley lines or other public utilities approaching the property.

If, however, after a few years your lawn has grown into a beautiful approach to your home, some corporation or public utility wishes to make repairs that require diggings and excavations, it may prove a matter of much annoyance and perhaps detriment to your property if they hold a priority right to do such things.

Lot in Developed Area Best

Your lot may be unimproved, without water mains, sewers, curbs, gas, etc. If these are to be installed later, you should have an estimate of the probable assessment because eventually these items must be included in the total cost of your lot.

Generally speaking—it is safer to buy a lot in a location either well developed or in the process of development.

In some localities, to insure and protect land owners from decrease in value, a restriction is placed on the type and kind of house you may be permitted to build.

It is not advisable to build a large home in a locality where small dwellings dominate. Neither is it good business to build a high priced home on a low priced lot.

Many city lots with a 40 foot frontage allow little spare land around the house. In a general way the cash value of the lot should determine the total cost of the house. Usually it is between three and four times the cost of the lot.

Water Line Important

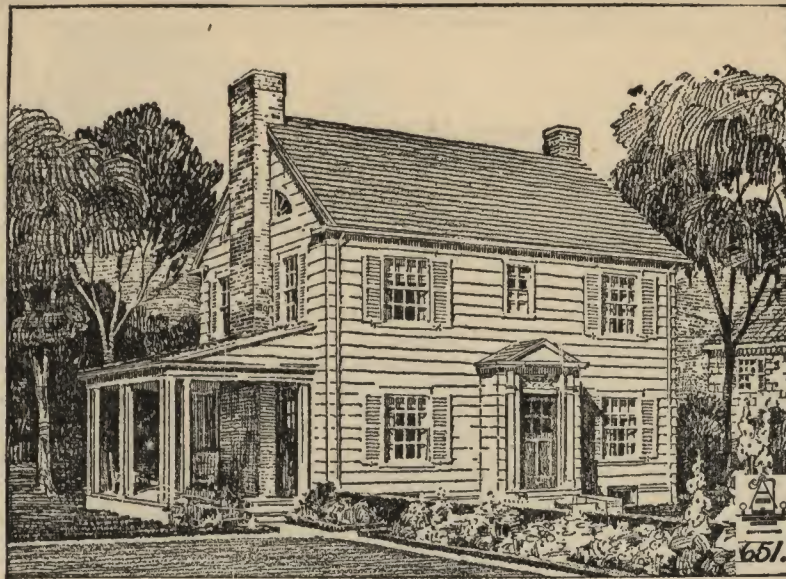
Don't forget that beneath every lot there is a water line. Property that is low is apt to give trouble with dampness and wet cellars.

Don't overlook the value of trees. Healthy, full grown trees have cash value. This frequently adds hundreds of dollars to the cash value of property.

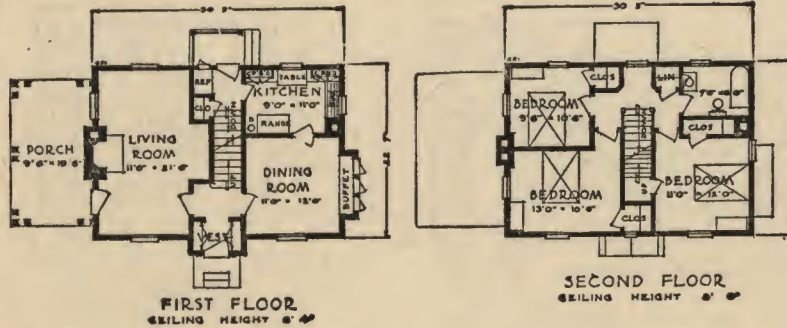
After you have selected your building lot, the next move is a contract of sale with the owner of the property. You agree to pay him a certain percentage of the purchase price—usually 10 per cent. This makes the contract binding for a limited period—usually 30 days—during which time you should have the title searched for flaws or claims against the property.

If the title is clear, you can safely complete the sale. Be sure to have the deed recorded with the county authorities. This officially establishes your ownership to the property.

Colonial Home—Six Rooms—Modest Cost



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This six-room home follows New England colonial tradition. It is frame construction, wide bevel siding on exterior, shingle roof, brick base and brick chimney. It is planned to eliminate waste space. The rectangular plan and simple roof makes it economical to build.

To increase building economy, standardized materials and stock lumber lengths have been used. Short lumber lengths which frequently are wasted go back into the construction of this home.

The approximate estimated cost to erect this house complete, ready to live in, including heating, lighting and plumbing, is between \$6,500 and \$7,000. This depends upon location and conditions under which the home is built. The cost will be increased by using elaborate finish and expensive equipment. It can be decreased by using simple finish and eliminating all but the necessary equipment. For example, narrow 6-inch siding can be used rather than wide siding. The partitions in the basement, the living room fireplace, porch and also a number of built in features can be omitted if desired.

In reality this home provides two living rooms because the wide, roomy porch if screened and comfortably furnished can be used as a summer time living room. A French door leads from the living room to the open porch. A finely proportioned brick fireplace with colonial wood trim is a feature. Opposite the fireplace an 8-foot long alcove with lights on either side provide a niche for piano or davenport.

A built in buffet, topped by three short casement windows, is a dining room feature. The kitchen is well lighted, planned to route steps, lessen labor and lighten housekeeping. Outside icing is provided for the icebox.

All bed rooms have corner exposure, good closets and cross ventilation. Attic storage space is reached by stairs leading from the front right corner bed room.

A variation of this home plan provides a sleeping porch, a sun porch and a bedroom to the rear of the house.

WHATEVER YOU WANT TO KNOW ABOUT BUILDING

Questions addressed to this paper will be answered by the Architects Small House Service Bureau of the United States, Inc., controlled by the American Institute of Architects and indorsed by the Department of Commerce, United States Government. Inclose self-addressed envelope for reply.

Q—Is it proper to place the kitchen sink on an outside wall? If so, how are the pipes kept from freezing?

A—The kitchen sink is placed properly on the outside wall under a window. The drainage pipes will not freeze up since they do not go into the wall. The water supply pipes should be wrapped in burlap or packed in mineral wool or otherwise insulated if they are run into the wall, but it is not necessary to so run them.

Q—Why does it cost so much more to enamel wood than to paint it?

A—This cost arises from the greatly increased labor necessary for enameling. More painting material also is used. A good job of painting may be obtained in three coats of paint. Enamel work requires at least five coats.

Q—What is the difference in cost and value of oak and maple?

A—This difference in cost varies with market conditions. At present it is very little. As between oak and maple for wearing on the home floor the choice is very finely drawn. Maple will outlast oak where there is a great deal of traffic as in schools, offices, etc. The choice should be made on the basis of appearance. Select the wood which pleases you best.

Q—What is the best wood for weather boarding?

A—This depends on the quality and price differentials. In the north and west redwood is excellent. In the south cypress is preferred. Poplar and yellow pine are used for narrow siding.

Q—Please state what is meant by wall board.

A—There are many kinds of "wall board." Some of them are keyed for plastering, which is applied over them. Some of them are rough and fibrous, so that when plaster is applied to them it adheres. There are some wall boards that are not designed for plastering, but are immediately ready for decorations. This last type requires to be covered at the joints with wooden strips.

Q—Can I use the sand taken from my basement excavation for concrete and mortar making?

A—Yes if it is clean and not too fine. There must be no soil whatever in the sand and very little clay. If the sand is very fine do not use it without additional coarse sand and gravel for your concrete.

Q—Will you tell me whether cement floors are considered good for houses? How are they best handled, say for a living room of rather larger size?

A—Cement floors frequently are used. Usually they are covered with a rug and the border painted or sometimes laid of tile or marble. Cement wears well and looks well as a floor if not too light in color. Floors as a rule are considered as the lowest tone in the room. They should be made to appear flat and unobtrusive. They are designed especially to walk on.

Q—I am planning to paint my house next spring. Would you advise using white paint and green blinds? It's a farmhouse and somewhat removed from the road.

A—Many people use white paint and green blinds. It wears well and if properly applied looks well. Be careful of the kind of green you select. Do not make the blinds too light a green. They add contrast to the house and should be painted a rather dark color.

Q—In the shingle roof over my neighbor's house there are some extra heavy lines occurring at regular intervals up the roof. I think this makes the roof look well. How is it done?

A—This effect is obtained by doubling certain of the shingle course. The improved appearance comes from the variety which this gives to the roof plane.

A Word of Explanation About the Building Costs Given in Connection with the Plans in this Book

Please

Note

Carefully

The costs of construction quoted in connection with the houses which appear on the pages of this book are in each case based upon the general average for the entire country.

In studying these house plans and their costs, please remember that building costs vary in different localities and sections of the country, depending upon local market conditions, cost of materials and labor.

In certain localities where costs are high, the highest figure indicated on these plans will be too low. In other localities, the lowest figure quoted will be more than sufficient. The range between the lowest and highest figure shown on each plan is given to cover the difference in quality of material and degree of equipment. Remember that your total building costs depend largely upon what you select and what you specify. Expensive equipment will increase your costs,—inexpensive equipment will decrease your cost.

HELP FOR THE MAN WHO WANTS TO BUILD

HOW MUCH CAN YOU AFFORD TO PUT IN A HOME?

An easy and direct way of answering the question, "How expensive a home can I afford to build?" is to consider the rent you have been accustomed to paying as a basis for estimating the probable amount of money you can afford for a new home.

Budget experts say you are justified in paying from one-fourth to one-fifth of your income in rent. On this basis it is entirely probable you can afford to invest one-fourth, perhaps more, of your income in payments on a new home, for which you would some time have a warranty deed and complete ownership.

The percentage of your income which you are justified in putting into your home depends upon two things. First, the amount of your income; second, the amount which your experience proves you can consistently lay aside or save each month after deducting living expenses.

What Experts Say You Should Invest

Consider the rent you have been paying as a basis. Can you lay aside any more than the rent money for home payments each month? If so, how much?

Don't make the mistake of trying to finance a home too expensive for your pocketbook. You may encounter grief in making payments. Experts on home financing say you are justified in building a home for which you can complete payment in about 15 years. If you have saved one-fifth the value of your home, you should be able to pay the balance in about 12 years.

For example, a home costing \$5,000, on which \$1,000 has been paid down, should be paid for complete in 12 years. That is to say, the balance, \$4,000, can be met in 144 equal monthly payments. To determine the monthly payments necessary to reduce the principal during this period, divide the balance, \$4,000, by 144. This makes the monthly payment on the principal nearly \$28 a month.

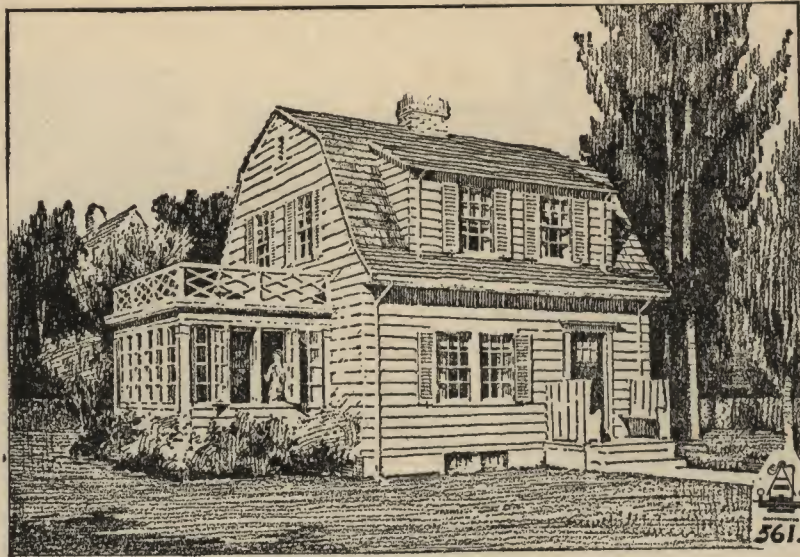
Why Not Pay Rent to Yourself

Figuring interest at 6 per cent, the first payment is \$20. Add about \$14 a month for insurance, taxes and upkeep and you have a total of \$62 a month. Thus you can estimate for yourself whether a \$5,000 home is too expensive for you to build or whether you can afford a larger dwelling.

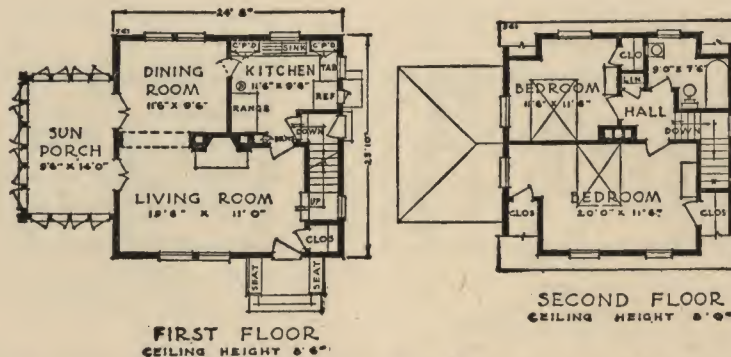
Considering home building from a business investment point of view, it is easy to see that if the landlord makes money on the rent he charges you for the privilege of living in his house, you certainly should be able to make money on a home of your own, provided you erect your dwelling economically and from the point of view of safe investment and wise financing.

After you have decided how expensive a home you can afford to build, your next proposition is financing. This will be discussed in future articles to appear in this column.

DUTCH COLONIAL—MANY FEATURES



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The roomy sun porch will prove a most practical and pleasing feature of this five room home. It is a 12-month-a-year porch. In summer the casement windows can be swung open to catch the breeze from three directions. In winter, if the porch has a south exposure, it will be warmed by the sun, even so, it is advisable to have the porch warmed by the heating plant. The sun room opens immediately into the living and dining rooms by means of glazed French doors, thus giving additional width to the house.

This home is a type which people invariably describe as homelike because it has such an inviting, comfortable atmosphere. Features that add charm to the exterior are the gambrel roof with wide dormers, front and back, and a handsome entrance doorway with two side benches.

This home is of frame construction with sided exterior, shingle roof, brick base and brick chimney. Stock sizes of lumber, millwork and standardized materials wherever possible are used. This eliminates waste in labor, materials and lowers building costs.

Study of the plan will show how impressively the living room, dining room and sun porch open up into what really is one big room. The living room has two features—the open stairway and fireplace. The fireplace, topped by a wide wood mantel shelf, is so located that one chimney serves fireplace, range and furnace.

The coat closet at the entrance serves as a convenient repository for wraps. The kitchen is planned to economize steps and to speed up house-keeping. Outside icing is provided. Bedrooms on the second floor offer cross ventilation and splendid closet space. A linen closet in the hall and painstaking planning of bathroom fixtures provide features sometimes overlooked in small homes.

As the house stands it contains 18,000 cubic feet and should be built for approximately \$5,500. This cost will be increased by using elaborate or expensive finish. It can be decreased by using simple finish which will not affect the substantial construction. It is what might be called a \$5,000 home.

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Q—Please tell me how I can check my contractor on grades of flooring used in my new home?

A—Flooring is graded by expert inspectors and is usually supplied in the grades that have been specified. If you have any doubt about the quality of material your contractor is supplying, we suggest that you consult with your lumber dealer, or better still, with your local architect. Very refined distinctions are made between some of the grades of flooring.

Q—What is the difference between "No. 1," "No. 2," "selected" and "clear" stock?

A—The differences are matters of quality. The distinctions are made on the basis of the number and extent of faults in the pieces and in the case of some, on the basis of color and grain figure. In any quantity of wood supplied, there are sure to be pieces which lie on the border line of two adjacent grades. Whether these pieces should be in the lower or upper grade, is a matter of individual judgment. If you are interested in the exact differences, we refer you to the grading rules which have been published for each of the commercial woods. These may be obtained free from the National Lumbermen's Manufacturing association.

Q—On the working drawings for my house I find that there is a device which is marked "louver opening." Please advise me as to what this is and the purpose of it.

A—A louver is a slatted opening employed usually for ventilation. It is commonly placed on the roof to insure ventilation of the attic space.

Q—Can I stucco my house in cold weather successfully or do you advise waiting until weather conditions are warmer?

A—It is not advisable to attempt to stucco in cold weather. The stucco sheet is very thin and does not hold heat long enough, even where the materials are heated before being mixed, so as to allow them to set before freezing takes place. In consequence, the completed work may be very inferior in quality. We strongly advise you to delay this operation until you have a continued period of warm weather.

Q—In a home we previously built we had difficulty with our fireplace draft. Will you be good enough to tell us how to construct a fireplace so it will not smoke and will you recommend a damper that can be used successfully?

A—The flue should be straight, of proper size and lined with fire tile. If it is not possible to build the flue straight, then there should be no reduction in cross sectional area where the bends occur. The height of the fireplace opening should not be more than one and one-half times the depth of the fireplace. Smoky fireplaces are sometimes improved by reducing the height of the opening through laying one or more courses of brick over the back hearth. A mechanical throat and damper placed as directed by the architect will insure you satisfaction. If the flue and fireplace are constructed as they should be. A number of good types of mechanical throats are on the market. The principle of each is to provide an opening for the smoke at the top of the fireplace, which can be adjusted to conditions of the fire. The distinction between the various types lies generally in the method of operating the shutter which gauges the size of the smoke aperture. We suggest that you select one which is simple and convenient in operation.

Q—Can you tell us why radiators knock?

A—There are a great many faults which may be responsible for this. The most common is faulty drainage of the piping system. If the pipes are pitched so that water cannot drain from them directly it may stand in pools through which the steam will be driven with explosive force. The contractor who installed your heating system should locate the source of trouble and adjust the piping without expense to you.

HELP FOR THE MAN WHO WANTS TO BUILD

WHAT YOU MUST CONSIDER FOR BUILDING LOAN

Before you decide upon the size and type of home you want to build, make a careful study of your financing proposition. Don't trust to hearsay. Get the counsel and advice of people who make home planning, building and financing a business. It will save you money in the end.

The lot you select, the home plan you decide upon and the available cash you have on hand will go a long way in determining the amount of money you can borrow for your building operation.

If the total cost of your proposed home is either too high or too low in proportion to the cost of your lot, your building project may be considered too great a risk by people who lend money. Therefore, you cannot be too careful in the selection of the type, kind and size of house you want to build.

Include Taxes, Interest, Insurance

When you estimate your financing don't overlook the charge for taxes, insurance, interest on the cash you have on hand, interest on the money you borrow, wear and tear on your property. These items must be included in the estimated total cost of your home if you want to determine a fair and assured percentage of return on the dollars you invest.

Home building is a business proposition. Go at it as you would a business in any line. If you decide to finance your home on the mortgage plan, don't get the notion that the house is not yours. It is. Keep in mind all the time that your banker or financial agency considers your home building problem from an investment point of view. Remember that lenders of money study carefully the kind of building lot you select, the kind of house you propose to build, the neighborhood, the probable increase of land value, the valuation of neighboring property—all these things have a bearing on your loan and the amount of money you may secure.

Where and How to Borrow Money

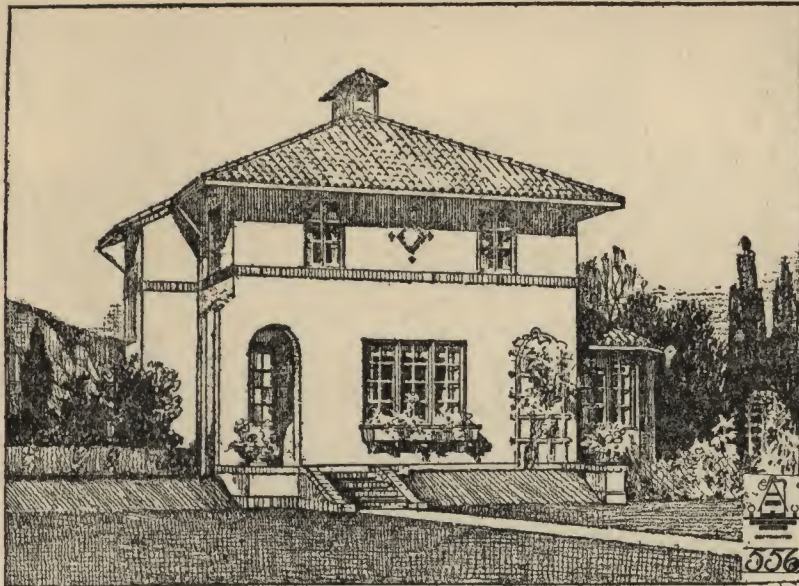
People who loan money for home building purposes are entrusted with the responsibility of investing other people's money. They must be careful. Lenders of money want to be sure about the character and reputation of those who borrow money. A person whose record is clean and worthy, who has a reputation for meeting his obligations promptly, whose credit is good can frequently get a large consideration in dollars and cents.

Home financing in the last analysis resolves itself into an investment proposition and adequate protection for that investment for both the people who loan money and those whose money is loaned.

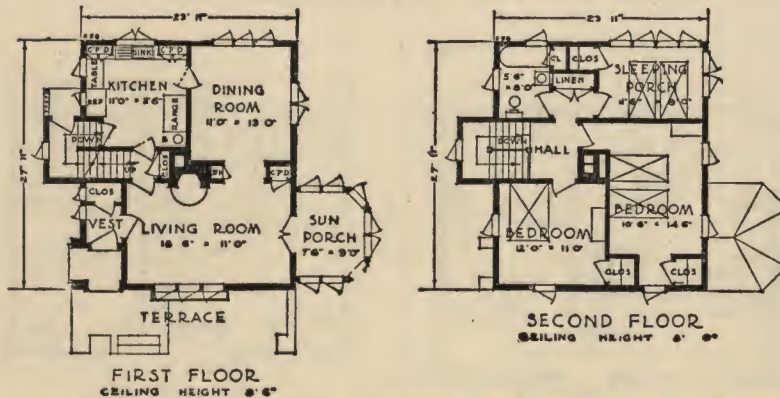
How much money you can borrow, where and how can you borrow it? This is one of the difficult problems a home builder has to solve when he proposes to build a new home.

The answers to these questions will be found in articles to appear in this column from time to time.

Square Home Reduces Waste, Saves Money



Copyright, 1921, Architects Small House Service Bureau.



This five-room home suggests a Spanish atmosphere due to the arched and recessed entrance, the stucco exterior and roof of Spanish tile. The fact that it is a square type of house makes it economical to build.

Every inch of available space has been used to the best advantage. There is no waste. The sleeping porch provides what amounts to a third bedroom. A lot about 50 feet wide is necessary for a proper setting for this home, although it can be placed on a somewhat narrower plot. The house is of frame construction, stucco exterior on metal lath and tile roof. It can be erected with hollow tile if preferred. The roof can be treated with wooden or composition shingles which would decrease the cost although the house would look better if carried out in tile.

Every desirable modern feature is included which provides not only architectural distinction in design, but also economy in construction.

The stairway leading from the first to the second floor fulfills a dual purpose both up and down. Because of its placement it does not take up floor space in the main part of the house.

All rooms in this house are corner rooms with cross ventilation. The approximate estimated cost to erect this home complete, ready to live in, including heating, lighting and plumbing is between \$6,500 and \$7,000. This depends upon location and conditions under which the home is built. The cost will be increased by using elaborate finish and expensive equipment. It can be decreased by using simple finish and eliminating all but necessary equipment. For example, the sun porch can be eliminated. Also the fireplace. Rather than a tile roof either wood or composition shingles can be used. Basement partitions and a number of built-in features can be omitted. These eliminations would in no way affect the substantial construction of the house.

A variation of this home plan provides a front porch with arched window openings.

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Q—I have not decided what kind of heater to use, but I want to be sure that the plant will have sufficient capacity so that my house will be warm. How can I make certain about this?

A—Heat losses in a building are determined by using formulae prepared by heating experts. These are based on the size of the room to be heated, the kind of construction in the outside walls, the height of the ceiling, the area of window glass, and the condition of construction whether good or bad. Knowing the heat losses a heater of sufficient size can be selected. Have your home plans figured for heat losses by an expert.

Q—I want hot water at all times. Shall I install a coil in my house heater for hot water during winter months?

A—Careful investigations have been made of this matter by heating experts. The opinion given is that the coil placed in the fire box cuts down the efficiency of the heater to a very large extent. Continuous hot water may be obtained through the installation of an automatic hot water heater.

Q—What is the proper height for the kitchen sink above the floor?

A—This dimension should be adjusted to the requirements of individuals using the sink most often. Do not set the sink too low. Two feet 10 inches to three feet are about right for the average person.

Q—I would like to select plumbing fixtures for our home. What is the best way to do this?

A—If you will call at the showrooms of one of your local plumbing goods dealers he will show you the different kinds of materials and finishes that are used and the designs of fixtures. In his catalogue you will probably find many styles of which he does not carry samples. Get him to let you see these also. Get the different prices. Make your selection accordingly.

Q—What is the best way to lay linoleum?

A—It should be cemented down over a felt base previously cemented to the wood floor. If the work is properly done the linoleum floor should finish flush with all adjoining floors.

Q—Does metal lath rust if used to hold plaster?

A—Not if the material and conditions are understood and the materials are properly applied. It is easy to do it right. In that case metal lath is very durable. If metal lath is used in connection with exterior stucco work have the lath of the coated type and see that the mortar is pressed into it so that the lath is completely embedded. Finish the base of the building with at least eight inches of brick.

Q—Can brick sills be used in frame walls?

A—This is not honest construction. The bricks so used are difficult to secure properly. If they move you will have a damp wall.

Q—Is it necessary to use paper over the rough sheathing if I use insulation between the studs?

A—In cold climates both of these materials are necessary. The purpose of the paper is to stop the wind. It is not a good insulator. Most insulating materials are not used as wind stops, but they are excellent insulators. The combination of paper and insulator makes a complete job.

Q—How much more will it cost to lay a tile floor in my bathroom?

A—This depends largely on the kind of tile you select. In general the difference will be in the neighborhood of 75 cents to \$1 more per square foot for the tile.

HELP FOR THE MAN WHO WANTS TO BUILD

POINTERS ON HOW TO GET MAXIMUM BUILDING LOAN

Suppose you have saved one-fifth the value of your proposed home. This will help greatly in financing the balance. If you can prove you can save money for a start, you can show those who loan money that you are able to save for the payments on your completed home.

You must be prepared to talk to the money lender intelligently. To do so you should have definitely in mind the plan of your home, the type and kind of house you propose to build, materials and equipment you prefer to install and, last, the total of your completed dwelling. With these facts in hand you will be in a position to show the money lender a very definite proposition.

On such a basis you will be able to demonstrate you can make monthly payments and that the amount of money you ask for will be sufficient to finish the erection of your home and pay all bills in connection with the operation.

One-half the Battle is Won

One-half your battle will be won at the start if you have these points definitely decided. That's why it is good business to first be sure of the amount of money you can actually afford to invest in your home and, second, to select a home plan which will permit you to conduct your building operation within the limits of your purse.

You now come to the fundame. al question, "How much money can I actually borrow—where and how can I borrow it?" It is well to remember that you can get the advice and counsel of your banker who you undoubtedly know, or you can obtain the advice of one or more reliable men in your community with whom you are acquainted. Bankers, trust companies, building and loan associations, home financing corporations, reliable real estate firms and realtors are good sources from which to get authentic information about the building and financing of your proposed home.

Two Ways to Handle The Title

While conditions in various states and cities may vary slightly, the following will be found generally true throughout the country. There are two customary ways to handle the title when financing the building of your home. On the one hand you will have the deed and give in return one or two mortgages, called first and second mortgages. On the other hand, a financing company holds the deed and gives you a contract for it.

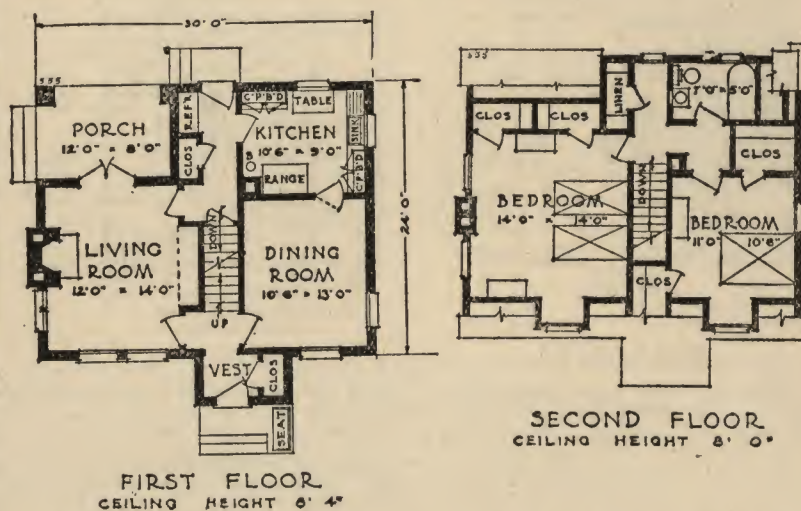
As you proceed toward the financing of your home, it is well to remember the following principle: The greater security you can give for the money required, the less the money will cost you. When your equity in the property is very small, it is necessary for you to pay more for the money you borrow.

The difference between mortgages, contracts and cost for same will be discussed in a future article to appear in this column.

Medium Priced Home for Small Family



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The needs of the small or moderate sized family, where a medium priced home is desired, have been kept in mind at every step in this plan which is practically square and, therefore, the most economical type to build. This home is adaptable to most any setting or section of the country. It is compact in arrangement, no waste space and yet offers a great deal of distinctive character in both external and internal appearance.

The structure of the house is frame with shingle roof. Exterior walls are brick veneer to the top of first floor window sills. Second story and gables are in stucco and half timber. Wide, white mortar joints in a warm face brick give snap to the external design.

The roof line broken by two dormer windows, the decorative half timber treatment in gables and second story, the outside chimney, the side seat before the entrance are features that lend charm to what is really a very simple, almost square house. A roomy open porch is particularly well located under the main roof and to the rear of the living room. The entrance vestibule projects slightly from the house, although cleverly included under the main roof.

Living room features are a brick fireplace, large alcove, glazed double doors leading from living room to porch and outlook on three sides.

In the kitchen every provision is made for efficiency, labor and step saving. Bedrooms are provided with cross ventilation and adequate closet space.

This house should be built for approximately \$6,000 complete, including heating, lighting, plumbing. The cost can be increased by using expensive equipment and finish. Likewise, it can be decreased by using simple finish and equipment.

In the development of this plan stock materials and standardized equipment are used wherever possible. This assists in eliminating waste and, therefore, lowers building costs. This home is adaptable to the average 40-foot city lot. More space, however, would provide a better setting.

WHATEVER YOU WANT TO KNOW ABOUT BUILDING

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Q—Advise me, please, about the grades of rough lumber to be used in framing. Where shall I use No. 2 and No. 3 grade? What is the difference in cost?

A—Do not use No. 3 grade in framing supports. No. 1 should be used for girders, sills, posts, floor joists, bearing studs and rafters. No. 2 grade may be used for ceiling joists and plates. Studs for nonbearing partitions are sometimes specified to be of No. 2 stock. No. 3 grade may be used as sheathing under flooring and interior linings. The difference in costs vary with the kind of wood and the condition of the local market. Consult your lumber dealer. Do not make the mistake of trying to save money by using inferior lumber in framing.

Q—Is a tile roof waterproof?

A—Yes, if properly laid. A tile roof without an undercoating of waterproofing is not waterproof. It is necessary to prepare the roof surface with a coat of material that will turn all water that may be blown or drain up between the tiles. The tiles laid over this complete the construction.

Q—I want to varnish my floors. I find that there are a great many kinds of varnish—which one shall I use?

A—This is a product that is very easily manipulated. The safe way for you is to require your painter to supply only a guaranteed product. See that it comes to the job in the original can with unbroken seal and that it is used without adulteration as sometimes shellac is substituted as an undercoating. Never allow shellac to be put on a floor. Varnish is made from vegetable oils and gums. The finest of these are imported from China and Australia. A cheap but wholly unsatisfactory varnish is made from rosin. Do not buy a cheap unknown varnish.

Q—Why is it that so many of your houses do not have wide cornices? It seems to me a house without a wide cornice looks unfinished and cheap.

A—The wide cornice which is used so often in small house construction is very badly out of scale with the building, appearing too heavy. It certainly costs more than its usefulness warrants, and the upkeep is greater than that of a narrow cornice. The wide projecting cornice is not in character with the English or Colonial types of architecture.

Q—When the surveyor is locating my lot lines and the corners of the building is there any other work that I should have him do.

A—Be very sure to have the grade line established at this time. This is very important for unless this line is established correctly with respect to the sewer you will have problems as to drainage which it may be impossible to solve properly. Obviously the laundry tubs in the basement should be high enough above the street sewer so that they will drain. The grade line should be established with this in view.

Q—We thought that we would have a cedar lined closet in our home to store woollens with the idea that this place would be moth proof. Someone has just told us that a cedar lined closet is not moth proof. What do you think about it?

A—The odor that is given off by aromatic cedar wood is not highly effective in keeping out moths. In fact, most of the materials having particular odors which are counted upon to repel moths are not very effective. If you wish to preserve garments against inroads of these insects, have them thoroughly cleaned before they are put away and then put them in a chest that can be closed very tightly.

Q—I am advised that a sand float finish and painted wall surface is preferable to wall paper. Can you straighten me out in this matter?

A—This is a matter of personal preference. The papered finish is usually considered more intimate and you have practically unlimited opportunities in the way of color and figure decorations. The sand floated finish painted without decorations will cost you less than a good job of wall papering, with a firstclass grade of paper. Some persons object to sanded finish on account of its roughness. However, some very delightful results may be worked out in this fashion. You must make your decision final when the plastering is done, for papering over the sanded finish is not successful.

HELP FOR THE MAN WHO WANTS TO BUILD

HOW MORTGAGES AND CONTRACTS ON HOMES DIFFER

Financing companies usually loan about one-half the value of a home on a first mortgage. If you need to borrow only about one-half the total value of your home, it is best for you to keep the deed and give a first mortgage to cover the remaining half.

This includes the value of both your house and lot combined. Keep in mind that in this method of financing you hold the deed to your property.

If only a little more than half the value of your home is needed, it may be advisable for you to keep the deed and give a first mortgage and in addition a second mortgage. Here also you hold the deed, but there are two mortgages against it.

If you have to borrow a sum of money greater than can be taken up by a first and second mortgage, you may be able to raise it through a contract.

Second Mortgage Vs. Contract for Deed

The difference between a mortgage and a contract for deed from the standpoint of the money lender is the time necessary to secure possession of the property should you default in your payments. While the statutes in various states differ, the average time required for such action under a mortgage is about one year, while under a contract for deed it is only about 60 days. This makes the security under a contract for deed better than that under a mortgage. Keeping this in mind you will understand that with the same margin of security, a contract for deed can be sold with a smaller discount than can a second mortgage. It follows, therefore, that it may cost you less to borrow the money under a contract for deed than under a second mortgage. By this scheme the money lender holds the deed which he contracts to deliver when all payments on principal and interest have been made.

Commission You Must Pay

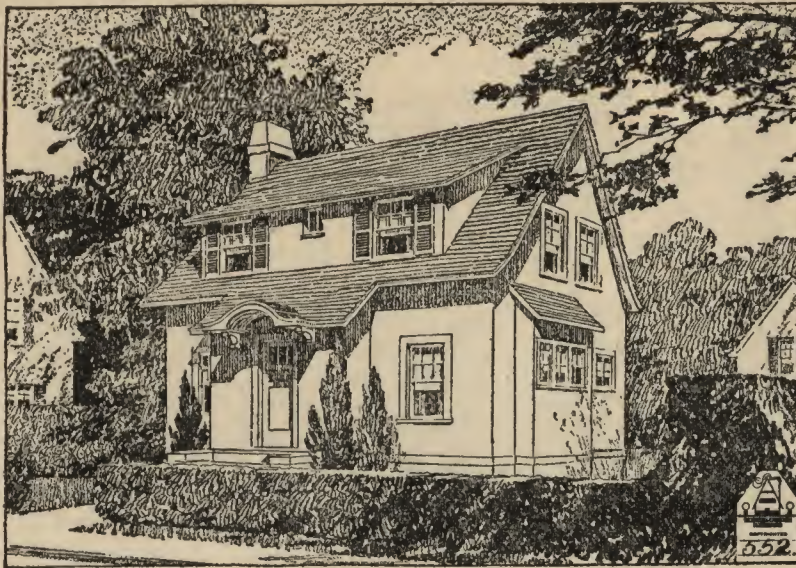
Nearly everywhere a commission is charged the borrower for the money loaned. The money lender in most cases is merely a go-between the capitalist and the borrower. The money lender gets in touch with people who have money to loan and then he finds people who wish to borrow. For this service he receives a commission. The amount of commission differs in various localities. It ranges from about 1 per cent to 4 per cent on first mortgages and from 5 per cent up on second mortgages.

Contracts or second mortgages are not made or purchased by first mortgage companies. They are purchased mostly by private parties who charge all they can get. Frequently the discount on second mortgages and contracts ranges between 15 per cent and 30 per cent.

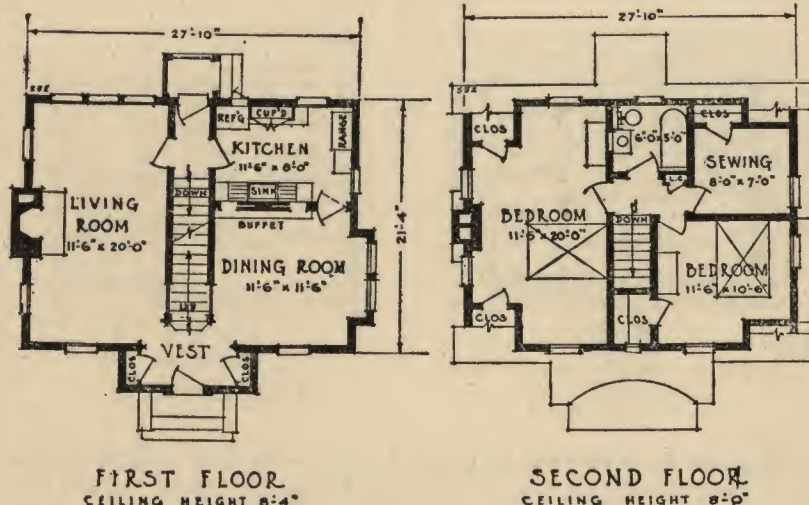
It is necessary, therefore, that you make a very thorough investigation of the total cost of a second mortgage or contract for deed before you sign up.

Because commission rates on first mortgages are much less than on second mortgages or contracts for deed, it is advisable for you to get as large a first mortgage as possible, hereby reducing the amount of the second mortgage and saving you money in commissions usually asked for handling second mortgages.

Five Room Home—Unusual Value



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This five room home should gladden the hearts of home builders because of its spacious, comfortable, conveniently arranged plan. It can be built on a 40 foot lot. It is of frame construction, brick front steps, shingle roof and siding exterior although stucco walls may be used as shown in the illustration.

Every inch of space is utilized to advantage. The fireplace in the living room, combination built-in dining room buffet and kitchen cabinet are features that will increase the value of this house far beyond the money they cost.

The reception hall is unusual with its arched opening into the dining and living rooms and the partially open stairway. Observe the two coat closets. The dining room requires little furniture since it has a beautiful bay and a handsome buffet. This buffet extends through to the kitchen. On the kitchen side it is a cabinet with a sink placed between cupboards. Doors to the cupboards open from both the dining room side and kitchen. The housewife can put her clean dishes on the cupboard shelves and, when it is time to set the table, remove the dishes from the dining room side. This is a decided step and labor saving arrangement, in fact, this is a model kitchen in so far as it is possible to design one.

On the second floor there is a conveniently located bathroom supplied with a medicine cabinet, a linen closet in the hall, a sewing room with good closet and two airy bedrooms with cross ventilation.

This is an economical home to erect because it follows a square plan. It should be built complete, including lighting, plumbing, heating, painting, ready-to-live-in at a cost ranging from \$5,500 to \$6,500, depending upon equipment used.

In some localities this house can be built at a less figure than the lowest one quoted, provided the home builder is willing to eliminate certain features which would in no way lessen the comforts, conveniences and substantial construction of the home.

WHATEVER YOU WANT TO KNOW ABOUT BUILDING

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Q—Please advise whether rock faced cement block is considered good design for foundation treatment of a home.

A—This is not considered as being good design. The plain faced blocks look much better. In general, it can be said that imitating one material with another does not show good taste, especially so when no improvement is gained by imitation.

Q—What is meant by planning a kitchen to route steps and save labor? Is this a scientific proposition or one which merely sounds well?

A—Experts in household management have determined that there is a rather definite procedure through which the housewife goes in the preparation of a meal and the clearing up afterward. The kitchen should be planned so as to accord with this procedure, thus the food cabinet, refrigerator, work table and sink should be placed adjacent to each other. The drainage boards for the sink should be located so that soiled dishes carried from the dining room will be carried the shortest possible distance. The china cabinet should be placed where it will be convenient to the dining room and at the same time adjacent to the kitchen sink. In working out a scheme for the kitchen arrangement a great deal of time and labor may be wasted by having the kitchen fittings located improperly.

Q—On the second floor of our new home we are planning to finish the woodwork white. Would it be better to have the doors stained mahogany or just to have the panels mahogany with the remainder of the door white, or would you have a plain white door? How should the floors be stained to look well with this woodwork?

A—The finish of the doors is a matter of taste. Any of the methods you name would look well in appropriate surroundings, except staining the panels a different color from rest of door. This is bad taste. The preference is usually in staining the entire door, as this does not show finger marks as readily as white paint or enamel. A well designed door, properly enameled, is very fine appearing. Do not stain your floors too dark a tone. They will wear darker with use. A dark floor shows dust very readily and is not as cheerful appearing as a lighter one.

Q—I am increasing the radiation of my hot water plant by the addition of about 120 ft. of radiators, and it has been suggested that this change could be more economically and satisfactorily made by converting my present hot water system to a vapor system. Will you kindly advise me if this system, particularly those using the Crosby valve, has proved satisfactory, and if this would be a more satisfactory job for me than attempting to increase the size of my boiler and the supply pipes to take care of this increased radiation?

A—We never have found it economical to change a hot water heating plant to a vapor system. The type of boiler is not that which is used for vapor or steam. It will be necessary to change the hot water dome on the boiler for a steam dome. Assuming that the house is an eight or nine room house, your present boiler, if properly designed, should be at least twice the rated capacity of the radiation. This being the case, if the radiation of 120 ft. additional is simply another radiator placed in the present house, and you have not added rooms, there is no reason why this small amount of radiation cannot be added much more economically than to change the type of the heating system. Another reason why we do not advocate the change of system is that the hot water mains in the basement would not be properly designed for a vapor system in size and general distribution. Likewise, the slightest trap or sag in any of the mains or branches therefrom would prove detrimental to the proper working of the vapor system. We would judge without more complete information that it would cost anywhere from \$150 to \$200 to change the hot water plant to a vapor system, while the addition of 120 ft. of radiation should not cost more than a quarter to a half of this amount. All of the radiation, if properly designed, for hot water, would be 40 per cent larger than would be required for a vapor system.

HELP FOR THE MAN WHO WANTS TO BUILD

HERE ARE WAYS TO SAVE MONEY FINANCING HOME

If you want to build a home and save money, don't make the mistake of trying to begin your building operation before you have thoroughly investigated your financing proposition. The more study you put on it in the beginning the more dollars you will save in the end.

When you borrow money to build a home you must pay for the privilege of using it just the same as you pay for lumber, cement, bricks and other materials that go into the construction of your house. You should be interested in getting money at the lowest possible figure consistent with safe financing methods.

Some people think, when they buy a home with a small amount of money down and the balance on contract, they are paying no commission for the money. Don't be misled on this point. Perhaps you will pay more for the use of your money than the usual commission on account of the increased cost of your home.

How to Save Commissions

For example: If you buy a home for \$5,000 with only \$1,000 down, you will probably be able to purchase this home for \$500 to \$800 less if you had all the cash.

Also remember that people who build homes to sell on easy payments have to charge enough extra for the home to cover the cost of the first mortgage and the discount on the contract.

It is often possible to save a large commission on a second mortgage by securing the amount of money required above a first mortgage from a friend or relative who has confidence in you and is willing to loan you the money at a reasonable rate of interest—perhaps without charging you any interest rate at all.

In many cities home financing corporations have been organized for the purpose of financing homes above the first mortgage. There is also the United States League of Building and Loan associations with a nationwide membership of more than 4,000,000 members. A recent report of the league indicates that more than 1,000,000 American homes have been financed through these associations. The average size of the loan is about \$4,000 and the amount usually loaned is about 80 per cent of the value of the property, hence the average value is \$5,000.

Cash Payments Save Money

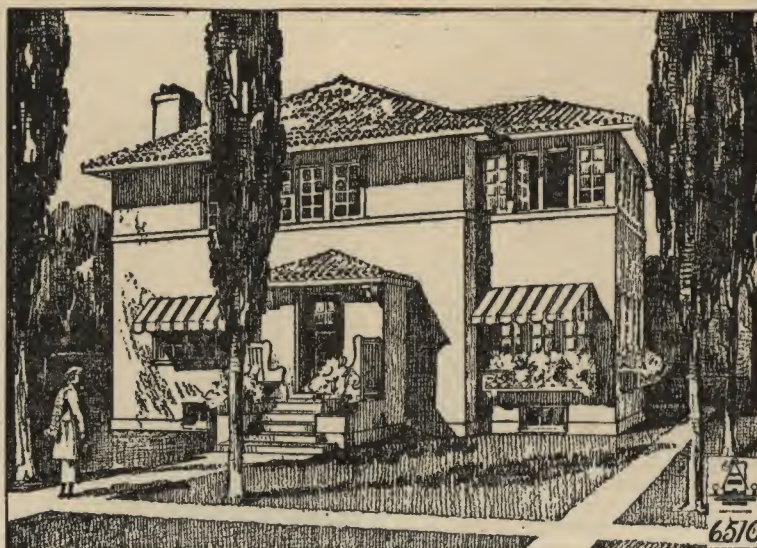
Through these organizations you can usually borrow about four-fifths the value of your home. The balance, one-fifth, you must have saved.

The advantage of financing your home through a home financing corporation is that you are able to buy all your labor and materials for cash and thereby get the advantage of the lowest cash price, along with any discount that may be given for cash.

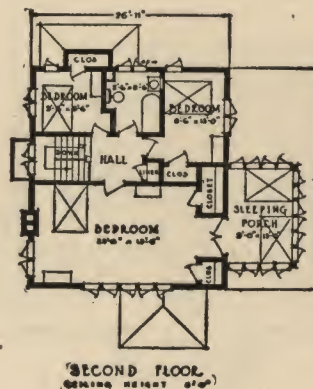
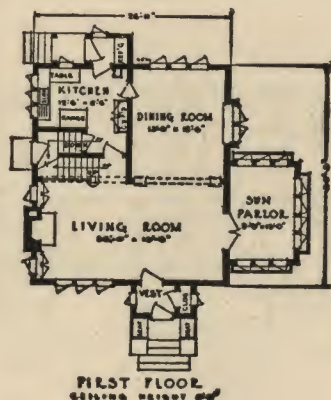
The usual requirement of money lenders, when making building loans where money is advanced to pay bills when due, is that the amount of money will be sufficient to complete the building of your home, to pay all the bills for labor and materials, to prevent liens for labor and materials being filed against your property. In most states such liens will be prior to first mortgages.

It is necessary for you to put your money in first and the lender will advance money for the payment of bills as they become due, always holding back enough so that the home can be completed and all bills for labor and materials paid thereon.

A Big, Small Home—Reasonable Cost



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Here is a home designed especially for those who want a spacious house and at exceptionally low cost for the conveniences it provides. It is a type adaptable to any section of the country. Because of its simplicity in design it should be erected at an economical figure.

The plan is a pleasing variation of the ever popular square type with a wing added to the side, providing the always desirable bedroom and sleeping porch.

The six good rooms, bath, sunparlor, full basement and sleeping porch, as shown, can be placed on a 46-foot lot, though a 50-foot frontage would give more lawn space and a somewhat better setting.

The house is frame construction, stucco base, stucco chimney and stucco exterior. Casement windows are used throughout, although double hung sash can be substituted if desired. The roof can be covered with shingles or tile.

The dining room, living room and sunroom open into practically one splendid room with a wide arched opening. A handsome brick fireplace has bookcases on either side. Stairs to the second floor are centrally located and the kitchen has easy access to both stairs and front door.

The kitchen has been carefully planned to economize steps and lessen labor. The bedrooms, bath, plenty of closet space for linen and clothes comprise the second floor equipment. The sleeping porch provides what amounts to a fourth bedroom.

This house should be erected complete, including heating, lighting, plumbing, at a cost ranging from \$7,500 to \$8,000. This cost can be lessened by using simple equipment and eliminating certain features which would in no way lessen the comfort, convenience and substantial construction. It can, likewise, be increased by using expensive equipment.

To insure strict economy in the construction of this home standardized equipment and stock materials are used wherever possible.

WHATEVER YOU WANT TO KNOW ABOUT BUILDING

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Q—Will you state your opinion about the comparative total cost to build a small home of lumber or brick? Is stucco on hollow tile less expensive than either brick or lumber?

A—Some of the factors entering into this question are qualities of material, conditions of local markets and methods of construction. The cost of a house of given size and quality built of brick would, as an average, run between 8 and 15 per cent more than a wooden house of similar size and quality. Stucco on hollow tile is less expensive than brick wall construction and more expensive than framing and finishing in lumber. It is not necessary to use elaborately treated face brick in order to get a good effect. Common brick or the very simple face brick laid with intelligence will save you money and give you a fine appearing and durable wall. In comparing the cost of wood and brick construction, do not fail to take into consideration comparative items of depreciation and maintenance. The masonry wall may be the cheapest in the long run.

Q—Is narrow four or six inch siding in as good taste as the wide siding, so commonly used on many exteriors? Is there any advantage in using wide siding? What is the difference in cost?

A—Narrow siding is certainly in good taste. Wooden houses of New England, built during the colonial period, were largely finished with narrow boards. Wide siding is a modern development which, used in the proper place, adds a good deal of architectural character and distinction to the building. Wide siding costs almost twice as much as narrow siding, and it is far more likely to split than the former. Some woods that make excellent narrow siding cannot be recommended for the wider type.

Q—I notice you refer to waste saving plans. Just what do you mean by this "waste"?

A—A plan saves waste if it uses less material to get a given result than would be true of another plan. For example, a rectangular plan of given cubage and quality will cost less than an ill shaped one of the same size and quality. A nearly square house will cost less than an oblong one, all other things being equal. In general, any plan can be thought of as having two divisions, one of useful area, such as living rooms, and the other of circulation, such as stairs and halls. The circulation spaces must not be too great in proportion to the useful areas. At the same time the circulation must be easy and direct. The rooms must be of good size and accommodation. Great skill and very careful thought is necessary to work out the proper balance so as to effect the most economical arrangement, with the greatest convenience. This is the architect's work. He is fitted by training and experience to do it best.

Q—If I use any of the common forms of insulation in my exterior walls, is it necessary for me to use sheathing paper beneath the weather boarding?

A—It is necessary for you to use sheathing paper underneath the weather boarding. The common forms of insulation are not wind stops, and if you omit the paper, you may have snow and dust drifting into your house.

Q—What is meant by fire stopping construction? What is the procedure of this detail?

A—The national board of fire underwriters has recommended the use of devices to stop the progress of flames in wooden walls and between joists. This involves the use of a mechanical blocking of fire through the use of incombustible materials, such as mineral wool, at the joint bearings and at other important points. The recommendation comes from an organization which has studied the control of fire in buildings, and it has, therefore, a practical bearing which merits attention. The additional cost of this construction is not great.

Q—If poured cement walls are used for my basement foundation, do I need to waterproof paint them on the exterior?

A—This is a question which must be answered in each case on the basis of local conditions. If your building is on high ground and situated over sand or gravel, you will probably not need the waterproof paint. If your building is situated in a low, damp place, the poured wall will not be much more protection against dampness than any of the other materials used in foundation buildings. Waterproof your walls, irrespective of the construction, if the building location is damp or subject to dampness. The cost of waterproof paint is very little.

HELP FOR THE MAN WHO WANTS TO BUILD

WHY CHEAP HOME MAY PROVE TO BE MOST EXPENSIVE

If you decide to build your home on the policy, it isn't what you pay, but what you get for what you pay, you have begun wisely. You have started a thrift and money saving campaign.

This policy may sound extravagant. It may imply a need for unlimited finances, whereas the limits of your purse, no doubt, fix the type, size and kind of home you can afford to build. Just what is meant by such a policy?

Consider two completed new homes, ready to live in, both practically the same size, style, equipment and conveniences, one costs \$5,000, the other \$7,500. Because of the \$2,500 difference in total cost you may say the \$7,500 home is "high priced." In the end the \$5,000 home may prove the most expensive, due to poor materials, cheap workmanship and the need for constant repair. In other words, the \$5,000 home is what is known as a "priced high" home.

It Pays to Insist on Quality

Don't forget there is a difference in actual money saving between things high priced to begin with and others whose initial cost is low, but priced high in the end. It is worth while to remember this point because it may save you trouble, worry and dollars.

Take a specific example. Suppose you pay \$10 for a pair of shoes and they give you three years of hard service with small upkeep and repair cost. Consider another pair of shoes at a purchase price of \$5. At the end of six months their shape may have gone, perhaps they are worn and frayed at the edges, the uppers open to the weather and out of repair, their service has reached the limit. It would require six pair of shoes at \$5 per pair, or an outlay of \$30 to give you the same length of service you would be sure of from the higher priced, \$10 shoe. It is easy to see which is the least expensive shoe.

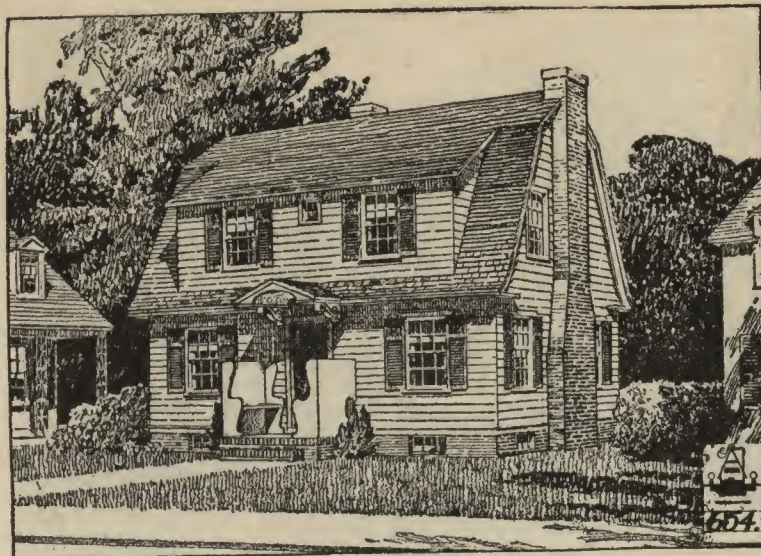
Quality Materials Cost Less in End

It pays in the long run to figure your home building problems in terms of service and value. It is poor business to "skimp and skin" to save a few dollars on the initial cost if in the end you have a continual outlay for repairs. You can build with cheap materials and poor workmanship, you can cut and prune costs, you can use substitute and inferior materials and equipment. If, however, at the end of six months the roof leaks, the plumbing balks, the paint peels—don't blame the roof, plumbing or paint.

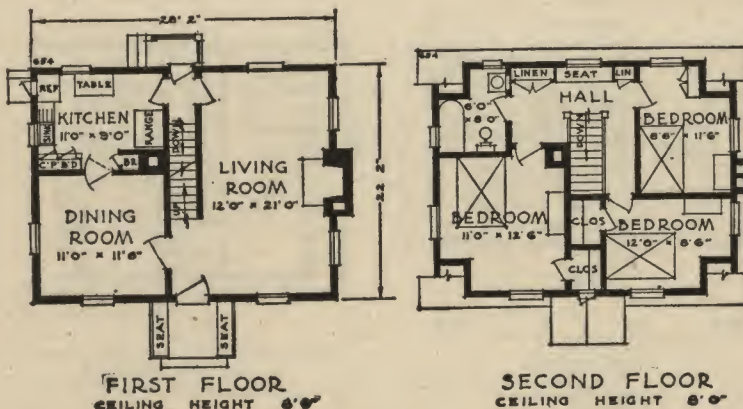
It pays to use quality materials. If anything goes wrong, if the plumbing, heating or piping fails, the makers of quality materials are ready to stand back of their products. Their reputation is at stake. They value it more highly than the products they manufacture and sell. True economy in home building means getting full value for the dollars you spend. Quality materials will give you service and service means value. It is worth while to remember this point in selecting your materials.

The easiest way to cut cost and practice true economy is to eliminate waste. How can you eliminate waste materials and labor? By erecting your home from a plan designed to give you maximum home requirements within minimum space and also by using materials and home equipment to the very best advantage. (The next article to appear in this column will cover these points.)

Ideal Six Room Type of Home



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The sloping lines of the gambrel roof in this Dutch Colonial home have a tendency to draw it to the ground—bind it, as it were, to the earth in a most homey manner, a desirable feature in a small home.

This house was designed with a view to getting six, pleasant, good-sized rooms in the smallest possible area and at the same time avoid waste in space and material.

The exterior is finished in narrow siding on frame construction with shingle roof. There is a basement under the entire home reached by stairs that run under the stairway leading to the second floor. Benches at either side of the entrance door suggest hospitality.

The house can be built on a 40-foot lot. A large airy living room is one of the outstanding features of the interior. Windows on three sides insure abundant sunlight. A nicely proportioned fireplace with wood mantel is a living room feature.

Every housewife will appreciate the steps saved by having a door between the living room and rear entrance. This is an ideal type of small home in many ways. All bedrooms have cross ventilation and good closet space. The bathroom is conveniently located. The stairway being in the center of the building is convenient to all parts of the house.

Beneath the window in the hall is a built-in seat with hinged cover, giving additional storage space. In one corner a special cabinet offers a splendid housing for a vacuum cleaner.

This home, ready to live in, including heating, lighting, plumbing, can be built for approximately \$6,500. This cost can be lessened by eliminating a number of features which would in no way affect the substantial construction. The cost can, likewise, be increased by using expensive equipment. It might be called a \$6,000 home.

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Q—I should appreciate it so much if you would give me some pointers about where to plant shrubbery and flowers; also to lay out walks and drives. My entire background is oak trees. The house sets up higher than the surrounding property.

A—Enough shrubbery is needed to cover the basement of the house, except where there are windows and also to enclose the yard. The house looks better if its connection with the ground is softened and partly hidden. Do not cut down all the wild bushes and flowers in and just outside the yard, and stick artificial beds about. In certain places, especially near the fences, they are most attractive if left to grow and kept free of coarser weeds. Soften the fence lines by planting shrubbery.

Q—Why do so many architects' plans show divided glass in the windows? Is this not more expensive? Such windows are certainly more difficult to clean.

A—This is done for the sake of appearance. The small lights are in better scale with the size of the house than single light sash would be. They lend an air of intimacy and charm to the house.

Q—Are metal weather strips really effective in preventing cold air from entering the house?

A—A great deal of heat lost takes place around the edge of the window. In general, there is much more loss in an old house than there is in a new one. Metal weather strips of good design and in working order prevent a considerable amount of this heat loss. One of the most scientific formula now employed to determine the amount of heat radiation necessary to warm a room takes into consideration, among other things, the combined length of window sash margins. When weather strips are used, the formula is changed; less radiation is necessary.

Q—The specifications for my house call for laying the under flooring diagonally. My contractor says this is not necessary and it will cost more. What do you advise?

A—It is commonly believed that under flooring laid diagonally increases the strength of the flooring system. This may be true in theory. In practice, the increased strength obtained in this way is of little importance. The advantage of laying the subflooring diagonal comes more especially from the fact that the finished flooring can then be laid in either direction. If strips are laid between the floors the subflooring need not be run diagonally.

Q—Is there a top or bottom to a floor joist, or are they used in construction just as they happen to come from the lumber yard?

A—There is a natural twist to most floor joists, which occurs during the seasoning operations. Carpenters laying joists turn the bow or convex side up, so that when settlement takes place the floor will be level. If there is a large knot on the edge of the joist that edge should be turned up.

Q—Is there danger of sewer gas blowing back and endangering the health and lives of occupants of bedrooms, provided the plumbing stack projects through the roof of the house above all second-story bedroom windows?

A—The importance of this matter has been exaggerated. Sewer gas is not likely to leak into your house with the conditions as you have stated them. The idea that the air circulating in sewers is laden with all forms of bacteria and disease, has been exploded long since.

Q—Is there such a device as an adjustable kitchen sink, one which can be quickly raised or lowered to suit the height of housewives? If so, where may we obtain one?

A—Your plumber should set your kitchen sink as you wish to have it. Almost all kitchen sinks are adjustable, or can be made to be so.

HELP FOR THE MAN WHO WANTS TO BUILD

WAYS IN WHICH YOU CAN LOWER BUILDING COSTS

The easiest way to lower home building costs and make your dollars buy full value is to eliminate waste. What is meant by waste?

You have observed homes nearing completion and noted unusual lumber lengths, studs, joists, flooring, bricks, short ends strewn "helter skelter" around the house and lot. These "left overs" usually provide the home owner with kindling wood for a number of years to come. At \$30 per thousand feet this waste makes mighty expensive fuel. Sometimes this waste amounts to as much as the first year's interest on your home building investment. In nearly all cases much of this waste is unjustified. If the home is yours, you pay for it.

Don't Overload Your Home and Purse

Another important source of waste is the unnecessary use of elaborate finish and expensive equipment, particularly in small homes. For example, you can spend too much money for your heating plant. You can select a type of brick totally out of comparison, so far as expense is concerned with the cost of your home. You can build an extravagant, complicated roof, you can overload your home with unnecessary, meaningless details such as monstrous brackets, wide, projecting eaves, heavy cornices and "frilly" things which have the appearance of being fillers, or "stuck on" in an attempt to secure architectural effects.

Much of this has little or no architectural merit, renders no service, detracts from the beauty of your home, and certainly piles up your total costs to unjustified amount. Details of this character and special equipment frequently require special knives and extra millwork.

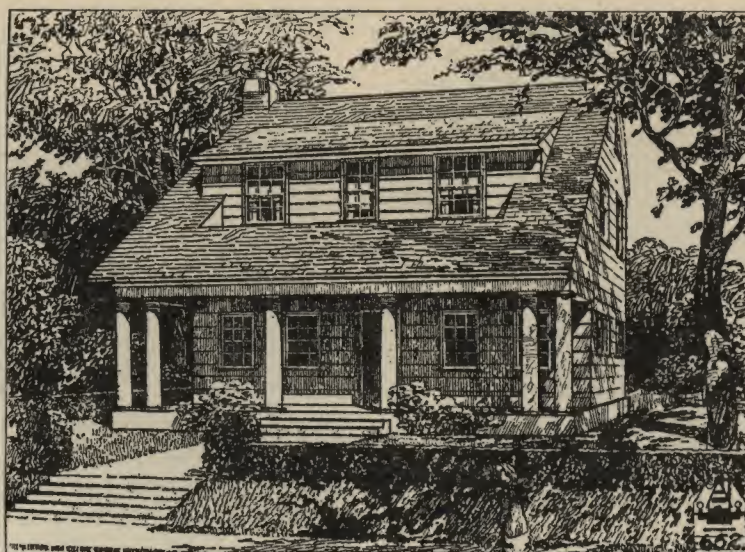
Stock Materials Lessen Waste

"Extras" are things which many home builders can do without and in no way interfere with the beauty, service or comfort of the home. It is worth while to remember these things and see that your home plans are designed to eliminate waste.

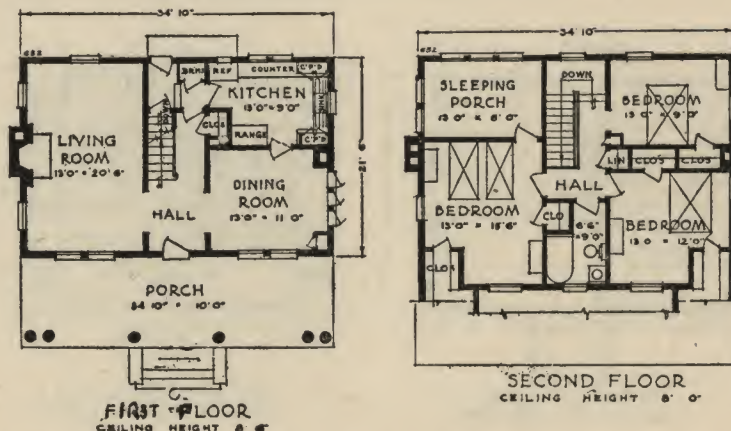
What is a waste saving plan? It is a plan that utilizes every inch of available floor space to the best advantage. It utilizes common "stock" materials procurable from the average material dealer. This does not mean that your home will be commonplace. To the contrary. Common materials, assembled uncommonly well, give you architectural correctness in design, eliminate waste, extras and lower your total cost.

It is worth while to call your attention to the plans appearing in this paper as examples of homes designed to save waste. They have been designed so far as practical and possible, to use stock materials. Ceiling heights are governed by stock size studs. This permits purchasing lumber lengths that cut without waste. Windows, doors, finish, trim are "stock" patterns in good taste. This insures convenience of delivery and reduces waste in materials, labor and extras.

Real Home Building Value



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Ever since the first Dutch colonists built homes after this style in Pennsylvania and New York state several centuries ago, the so-called Dutch Colonial type has been a favorite with American home builders. Its sturdy style is designed to wear well if built of quality materials. It is a type both comfortable and convenient in every way. The simple rectangular plan, elimination of waste space and building costs likewise make it a style of home reasonable to build.

The gambrel roof produces a snug appearance. The large dormer permits bedrooms practically full height. The wide, spacious porch is a very desirable feature. Round wood columns supporting the roof of the porch increase the impression of comfort. This home is a central hall type and is adaptable to nearly every section of the country.

This house provides six good rooms and bath. It is frame construction with brick base, brick chimney, shingle roof and exterior walls finished with wide bevel siding. The plan provides a full basement.

Study of room arrangement shows how carefully this home is planned to serve every comfort and convenience of a moderate sized family. All bedrooms have cross ventilation. An inclosed sleeping porch can be used 12 months of the year. It amounts to a fourth bed room.

The housewife will appreciate the linen closet in the hall, clothes chute from second floor to laundry, medicine cabinet in the bathroom. The kitchen has been designed scientifically and in accord with the modern principle of domestic economy, to lessen labor, speed up housework and save steps.

This home is adaptable to a 45 foot lot. It should be built at a cost ranging between \$7,000 and \$8,000, depending on conditions under which the home is built. This includes heating, lighting, plumbing, painting, ready-to-live-in. Expensive equipment, elaborate finish will increase the cost. Simple, but standard equipment, will lower the cost.

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Q—A contractor has told me that tile flue liners are not necessary and that the plastered flue is better. Which shall I use?

A—We have been unable to understand this point of view, which we find is widespread. Perhaps it comes from the fact that inferior tiles are sometimes supplied. Certainly the plastered flue lining is distinctly inferior to the tile lining, if the latter is of good quality. Tile flue linings being smooth, present less obstruction to the passage of smoke and gases than the rough plaster. Size for size of flue, you get a better draft with tile than with plaster. The most important feature is that the likelihood of a defective flue developing where tile flue liners are used is considerably less than it is with the plastered flue. Tile is required by most cities. The plastered flue must have thicker walls than the other.

Q—Does pulling window shades at night have any effect on keeping the house warm?

A—Yes. Experiments which were run during the war at various universities by the United States fuel administration proved that a saving of fuel of 20 per cent or more could be effected in this way.

Q—What are the requirements of the building codes on built-in garages? To what extent would they be fire-proof.

A—It is required that garages of this style have walls of masonry with a reinforced concrete ceiling above. The door and frame leading into the garage from the house must be of approved fireproof construction. Garages built in this way are moderately fireproof.

Q—Our plans call for a number of built-in kitchen features. We prefer a kitchen cabinet. Do you recommend such cabinets in preference to built-in work, and will you tell us which is the least expensive and most efficient?

A—One of the largest manufacturers of kitchen cabinets reports that at present over 5,000,000 of these devices are in use. This would seem to indicate their popularity and efficiency. The housewife usually requires space for storage of supplies and utensils in addition to space provided for these things in the kitchen cabinet. Kitchen cupboards are less expensive, foot for foot, than the best ready made kitchen cabinets, but unless they are intelligently designed they may be less efficient.

Q—I would like to ask for an explanation of the term "quantity survey." Is this a building document used in connection with small homes?

A—Another name for "quantity survey" is "bill of materials." A quantity survey lists the materials which will be required for the construction of a building, together with the quantities of each kind. Before any exact estimates of cost can be taken it is necessary for the contractor to provide such a list. Quantity surveys commonly have not been supplied by architects in this country—they have been so in many foreign countries. They are coming into use here because they eliminate factors of guesswork in preparing cost estimates.

Q—Advise me where I can obtain standard forms of contract agreement.

A—The Architects' Small House Service Bureau of the United States will supply you with forms of contract agreements at very little cost. You may prefer to use the forms published by the American Institute of Architects. These can be obtained from any first-class stationer. If you will send 15 cents in stamps to this paper we will supply you the service bureau's forms.

HELP FOR THE MAN WHO WANTS TO BUILD

ESTIMATING COST OF MATERIALS IN PLANNING HOUSE

What will my new home cost? What can I get for what I pay? Is it cheaper to build a frame, cement, hollow tile or brick home? Will stucco crack? Are concrete blocks less expensive than poured concrete walls? Does built in furniture increase the cost?

These and many more questions are in the minds of prospective home builders, people with limited sums of money

Things That Affect First Cost

Many things affect the first cost of a home. Tastes and purses of home builders differ just as the cost of materials and home equipment differ. You must keep in mind not only the first cost, but the year after year overhead expense, such as insurance, repairs, painting, taxes, interest on your investment.

The initial cost of a home not only is governed by cost of these materials, but by location of home, its plan, and availability of materials and labor conditions. Some homes in type are more sympathetically erected in wood than in brick, others look better in brick, cement or stucco, while the design of some precludes interchange of materials.

If you figure your home in terms of value, permanency, upkeep and overhead cost, you may find the answer in fire resisting materials. Your taste may run to the style of house that demands wood, and any argument for brick, cement or stucco would not offset it.

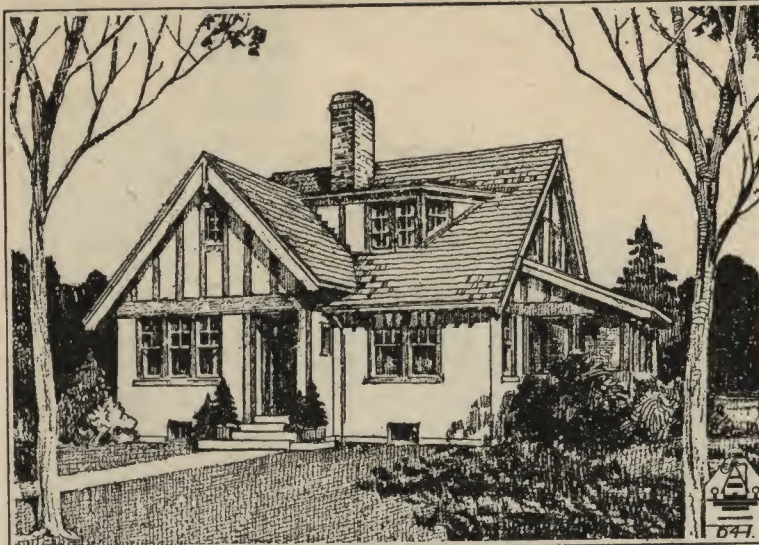
Comparative Cost of Materials

City ordinances often require the use of certain fire resisting materials. If you are content with a simple home of compact plan and are willing to install inexpensive but serviceable equipment, you can erect a home in almost any material at a reasonable first cost.

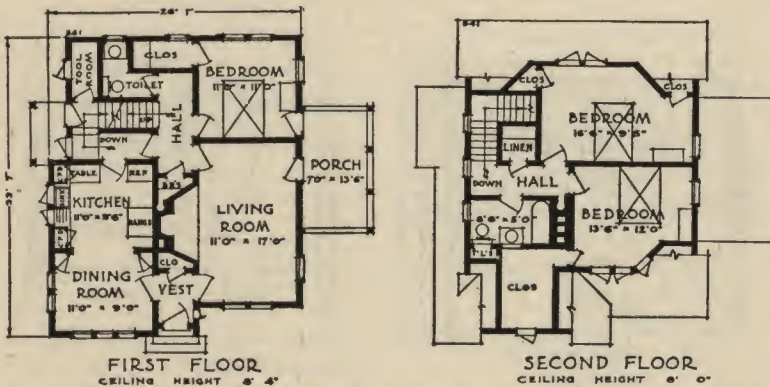
To be sure there is a difference in the initial cost of lumber, brick, stucco and hollow tile, but when repainting, lower fire insurance and upkeep are considered the fire resisting house may be the most economical in the long run.

The cost of construction is very definitely affected by the kind of material that is used, but this cost is by no means the same in all markets. If you are near the source of supply of any particular material you may be able to procure it at a figure which will make it less expensive than other materials which have to be shipped from a great distance. In order to determine just what these differences may be in your own locality, it will be necessary for you to inquire about them in your market. Another important factor in comparative costs is the item of labor. In certain large cities it has been shown that the cost on account of labor for doing a definite piece of work is greater than it is in smaller communities. This condition, we believe, is just, for it is in parallel with the general conditions of increased living expenses which go with larger cities. On account of these things it is absolutely impossible to lay down definite cost comparisons.

English Half Timber Treatment



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Home builders are turning to the small, compact, space saving home because it is economical to maintain and easier for the housewife to take care of. This five room home was designed after the bungalow type. It is a model of economical planning. The exterior is one that any home builder can well feel proud of. Note the little dormer tucked in between chimney and front gable, the attractive entrance, the pleasing way in which half timber alternates with stucco in the gables.

A feature of this plan is the large kitchen. The sunny front end, lighted by five windows, is set apart for dining purposes. Built-in corner cupboards for china on either side of the arched doorway practically convert the front end of the kitchen into a dining room. When there are guests a screen can be drawn across the doorway for privacy. Combining kitchen and dining in this way means a decided money saving in building costs, as well as saving in space and house work.

One chimney serves the fireplace, range and furnace. The dining alcove opens from the front vestibule so that the kitchen has ready access to the front as well as rear of the house. A roomy side porch opening from both living room and bedroom will prove a wonderful comfort in summer time.

A first floor lavatory with toilet and wash bowl will save many steps in the course of a day.

The living room is equipped with a handsome recessed fireplace with raised brick hearth. The first floor bedroom has a large closet, windows on two sides and door to the porch.

This house is of frame construction, shingle roof, exterior finish with stucco to top of first windows, gables are stucco and half timber. The house can be placed on a 48-foot lot. Without the side porch, a 40-foot lot will accommodate the house.

Exterior treatment is adaptable to bricks, hollow tile or cement.

The cost for constructing this home complete, ready to live in, including heating, lighting, plumbing, will range between \$6,700 and \$7,500, depending upon equipment. A number of features can be eliminated if the home builder desires which would lower the cost.

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Q—Our plans call for wide siding exterior. The style of the house is Dutch colonial. Would there be any saving in using narrow siding and would it affect the appearance of the house?

A—You save about 50 per cent in the cost of the siding material by using the narrow boards. The effect on appearance is a matter of taste. Either one will look well, provided the house is well formed and proportioned. The wide siding will make your house look smaller.

Q—Is it true in homes where stairways from first to second floors are placed on the side of the house that it is more difficult to heat the lower floor? Do you advise a door at the top of the second story landing?

A—Yes. The air is cooled along the outer wall and drops down. The open stairway serves as a flue, carrying the warm air coming from first story radiators upward. This condition may cause uncomfortable drafts. Putting the stairway in a stair hall or placing a door in the stairway at the top or at a landing will improve the heating. Closing the second story doors will help.

Q—Is it necessary to use a separate flue for kitchen range and fireplace, provided that the range is right against the flue?

A—The principle is to use a separate flue for each fire and to have brick partitions between adjacent flues. This is in addition to the tile flue linings, which should always be used. In the interests of economy, a single flue is sometimes used for two fires, such as the kitchen range and the house heater. When a strong draft is wanted for the house heater, the kitchen range damper must be closed. The particular combination of flues you mention is very poor.

Q—What is your opinion of oil as a fuel for small home heating? Is it practical and what is the probable expense of heating as to coal?

A—This is a thoroughly practical method of house heating, but it is more expensive than heating with coal fuel. The cost of installation is increased directly by the cost of the oil burning apparatus and tanks for oil storage. The oil burning system requires very little attendance. It is especially useful in larger homes, where the owner wishes to avoid employing service to attend the heating plant.

Q—What do you consider good proportions for a living room? Is it desirable to have a fireplace on an inside wall?

A—There are no fast rules for proportions. Rooms should be of such a size that they will be useful. Living rooms about two squares long, thus 11x22 or 13x26, give an air of roominess and good proportion. In small houses, we cannot easily vary the ceiling heights of rooms to accord with their other dimensions. The advantages of having a fireplace on an inside wall are as follows: No face brick is required, thus conserving expense; the flue is in a better location for a warm air house heater; if a coal burning range is used one chimney stack will serve to carry flues for the house heater and range.

Q—Is the method of obtaining the cost of a house by the cubic content method accurate? What part of the building is considered in obtaining the cubic content?

A—This is not an accurate method in small house cost estimating. It is fairly accurate for large buildings, like office buildings, schools and warehouses, where equipment and construction are very uniform. The cost of a small house varies somewhat with the size, but more so with what is put into it in the way of finish and fittings. Increasing slightly the size of a house does not increase costs directly in proportion to the added cubage. The cubic content as used for estimating includes the real cubic content of the basement and living portion of the house and half of the attic space. Open porches are counted in at 50 per cent of their cubic content.

HELP FOR THE MAN WHO WANTS TO BUILD

SELECTING HOME PLAN THAT WILL FIT YOUR NEEDS

What are the important things to consider in selecting a home plan? First, is the location of your lot, its size and cost. Next, the number of people in your family, the climatic conditions, the available and appropriate building materials. Last, but not least, the limits of your purse.

Your plan no matter how small should provide modern conveniences, home comforts, economic use of materials and labor. A well designed plan gives you both interior and exterior distinction and style. If you are like most people you want all you can get for your money. Remember that it costs no more to build an attractive home architecturally correct than a commonplace kind. Beauty has cash value—it adds much to the resale value of your home.

Select Plan From "Inside Out"

In choosing your home plan don't be too much influenced by style. Just because Dutch colonial, English cottage and Spanish mission styles are popular is no indication they will be the "home of your dreams." Wise home planners evolve their dream homes from the inside out. Simplicity, compactness, serviceability, are the basic requirements of a well planned home. These things in a large way determine style. Successful room arrangements, location of stairs, doors, windows, step and labor saving devices are far more important in home planning than "frills and fancies."

The old idea of spreading a home out over a large amount of ground has gone. It is too costly. Compactness is the present day rule. It insures economy. It does not mean your home shall be small or dull. Compactness means adjusting floor area to give you maximum convenience within minimum space without waste. This isn't a job for an amateur planner. Even the most skilled architects admit that a small home is far more difficult to plan than a large one.

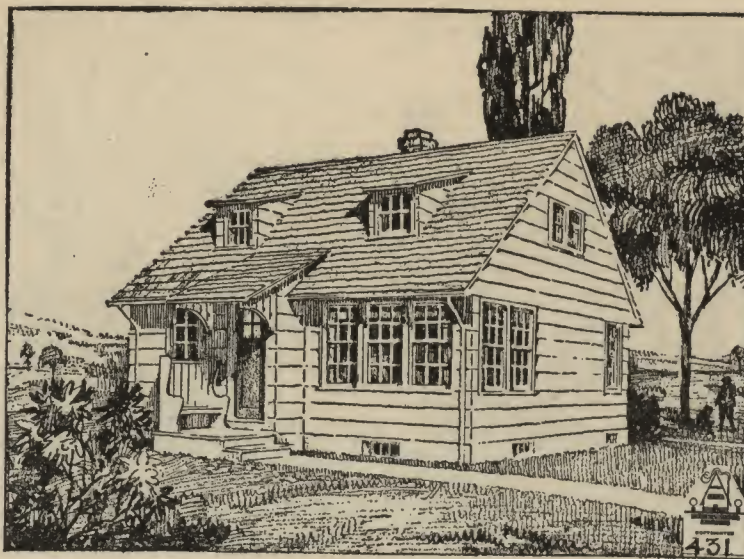
Even though bungalows are popular with many people, yet compared with the conveniences, comforts and floor area of the story and a half homes you will find bungalows are more expensive to erect. Someone has said that building a bungalow is like getting up steam on a locomotive and suddenly putting on the brakes. Your bungalow is underway, the workmen on the job and suddenly you clap on a roof whereas with a little more labor and material you might add a second story at comparatively small cost considering what you pay per cubic foot for a home all on one floor.

The Costliest Building Mistake

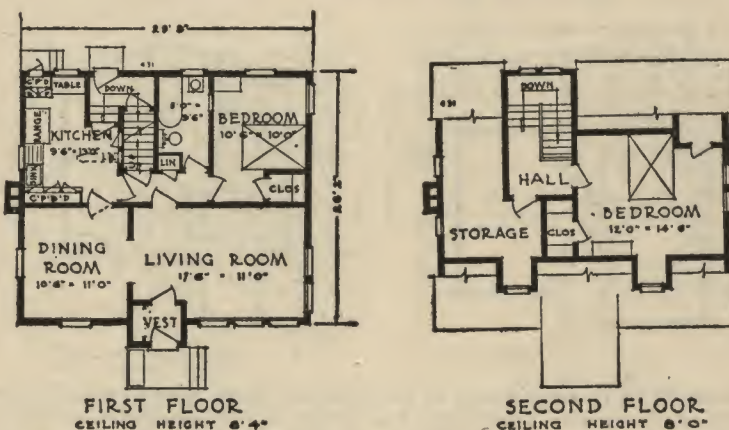
This is not an argument against the bungalow as a type. It illustrates what you must consider in home planning if your purse is limited and you desire all you can get for your money.

Taking chances on "sketchy" plans is perhaps the costliest home building mistake. Incomplete drawings poorly detailed spell unjustified waste of materials and higher costs. A good set of plans more than offset their small initial cost through the savings they make. They give you complete and independent control of your building operation. They permit you to buy your own materials. They give your workmen full instruction. There is no chance for guess work or argument. They eliminate delays and "extras."

A Model and Economical Plan



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A little study of this plan will show you why you will enjoy unusual comfort and convenience if you build this home. At the same time, you should derive the added pleasure and satisfaction from being the owner of a home so pleasing and individual in appearance.

This home was planned with two objects in view—economy of floor space and low construction cost. The simple, rectangular plan is economical and it gives each room an equal chance for air and light on two sides.

The outside chimney gives a homelike touch to the exterior. This plan calls for wide siding on frame construction, shingle roof, stucco base, brick chimney with cement cap, cement steps and front stoop with a side bench of wood. This house is designed to be erected on a 40-foot lot.

By grouping the windows in one corner of the living room an effect almost like a sun parlor is obtained. The sun room effect is an outstanding feature of the exterior design. Another pleasing detail is the hooded entrance with handsome glazed door.

The lower floor provides four good rooms and bath. The second floor offers a large bedroom and exceptionally large storage. In reality, this home is a semi-bungalow type. French doors between the living and dining rooms permit the rooms to be thrown together, making practically one big room extending clear across the front of the house.

The kitchen has been planned to save steps and labor. Direct and easy access from the kitchen is provided to the dining room, also the living and bedroom on the first floor. The ice box has a door for outside icing. There is a handy broom closet and built-in ironing board in the kitchen. A linen closet is close to the bathroom. Plenty of closet space is provided.

This is a \$5,000 home, including heating, lighting, plumbing, ready to live in. It is possible this home can be built for less money. For example, if the second story is not finished, if basement partitions are not installed, savings can be made without effecting the substantial construction. For a moderate sized family, it is difficult to improve upon the simple, compact and attractive features of this plan.

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Q—Which is the better mortar to use in zero weather, cement or lime? Will the building settle when the mortar thaws?

A—It is not advisable to do masonry work in freezing temperatures unless absolutely necessary, and unless all the conditions are perfectly understood. All of the materials must be warmed before using, so that the mortar will set before freezing takes place. Use a quick setting cement without lime. The wall will not settle to any appreciable extent if you follow these directions.

Q—I am planning on putting in a foundation of cement blocks for a two story frame house. Will a row of two foot cement blocks laid crosswise under the wall answer for a footing? There is a sand soil.

A—A row of two foot cement blocks laid crosswise will answer for footing. Fill the voids full of rich concrete, well tamped and not too wet. Wait for a warm day. Cover with straw to keep frost from working under the footings.

Q—I am going to build six garages. Which material is most economical, cement blocks or wood for rear and end walls?

A—So far as first cost is concerned, wooden walls may be built for less than concrete walls. Concrete will outlast the wood. It will require less repair work and no painting.

Q—What are the disadvantages of excavating, putting in a concrete mat and concrete block wall for a house in the winter months?

A—The disadvantage of excavating now is the extra cost of breaking up frozen ground, which may increase costs. The advantage is that you give employment to contractors and workmen who have very little work during this period of the year. In consideration of this fact you may be able to get the excavating done for about what it would cost you during the time when there is a large demand for this work. Another advantage is that you go forward with the other processes of building in advance of the regular season for each part of the work, at prices favorable to yourself. We advise you to wait for a warm day before you put in the footings and wall. Be sure that the materials are warm and that they are kept warm until the cement has set. Keep footings well covered to prevent freezing in them and in the underlying soil. The concrete floor should not be laid until after the house has been closed and a furnace set up and the house warmed.

Q—Am contemplating building this spring and would like to know if, in your estimation, a person could build a five room bungalow, or a semi-bungalow, for \$4,000. My lot is fully paid for and the \$4,000 would be used for building purposes only. Would like to build a substantial home, roomy, hardwood floors and hot water heat. Would like to build a place that one would not need be ashamed of and at the same time I would not care for any unnecessary ginger bread work.

A—We must advise that building a five room bungalow for \$4,000 is not possible, unless you are willing to do everything in an extremely frugal way. It is difficult to build small homes for much less than \$1,000 a room. Under the circumstances, we wonder why you wish to use hot water heat. You are not justified in putting in this expensive system in a small home such as you describe. A hot air furnace of first-class quality gives perfectly satisfactory accommodation for small buildings. It will save you several hundred dollars in the first cost.

HELP FOR THE MAN WHO WANTS TO BUILD

WHY BUILDER IS PROTECTED BY SPECIFICATIONS

A costly mistake some home builders make is to attempt to erect a home without a complete set of specifications. No matter whether your home is small or large, you cannot afford to take chances unless you are willing to pay more for your home than you should. Specifications will assist in saving your money. They take the guesswork out of building.

The reason specifications are used in home building is because they supplement your plans and take up your building operation where your plans leave off. In other words, it is impossible to describe every detail of your home building operation on a set of plans. Plans give dimensions, sizes, etc., but they do not describe the quality and grades of materials, methods of installation, types and kinds of equipment, all of which should be incorporated in a specification or written agreement with your contractor.

Specifications Save Your Dollars.

A specification is an ironclad understanding, in specific terms, of what you expect from your contractor and what he expects from you.

When an architect is employed to design a plan he prepares the specifications in consultation with the owner. Specifications are not only necessary in home building because of the detailed information they give, but they are essential as a medium of understanding between the contractor and home builder, thus preventing discussion and controversies as the job proceeds. Without specifications you are very apt to run into "extras" and changes. These things cost money. Therefore, if you are interested in saving your home building dollars, be sure that you provide yourself with this valuable document.

When signed a specification amounts to a contract between your builder and yourself. It sets forth the general conditions of the contract and includes such items as form of bids, rejection of bids, Supervision, Materials, Labor, Appliances, Separate Contracts, Protection of Work and Property, Changes in the Work, Payments, Liens, Use of Premises, Cleaning Up, Deliveries, Arbitration.

What Specification Includes

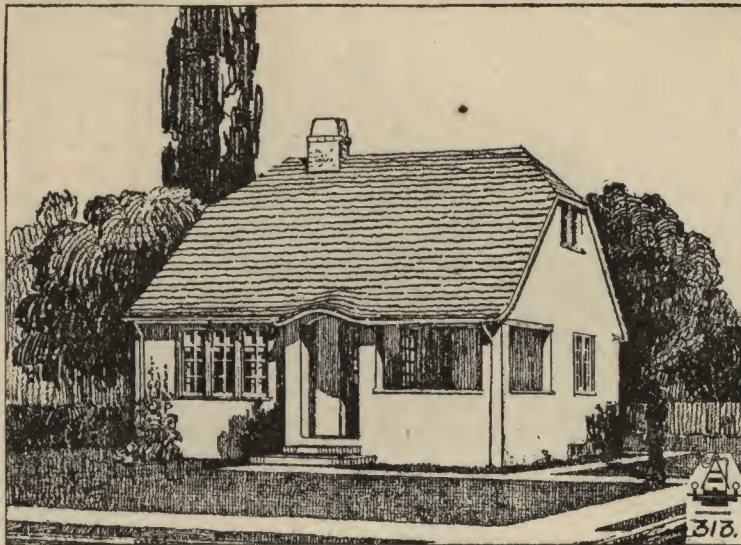
A specification properly prepared is a legal document. Because it is legal it gives you protection if for any reason it should become necessary to take your home building operation into the courts for decision.

Specifications describe the kind of material, the grade, the quality and form of workmanship. For example: If you propose to use hardwood floors, your specifications should state the kind of floor, quality and grade. If you desire enamel finish throughout the house, your specifications should state the number of coats and standard you prefer.

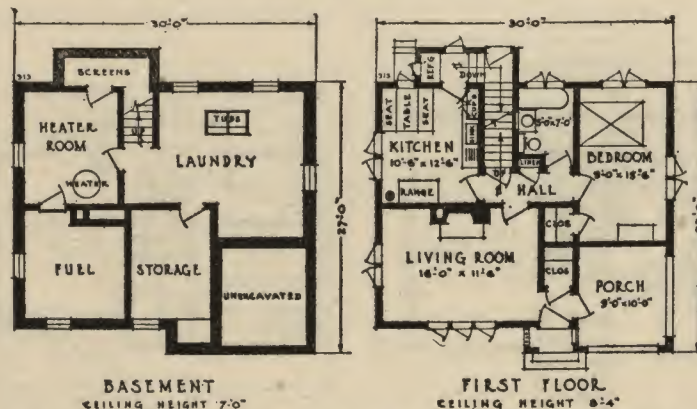
When subcontracts are let, specifications are prepared covering these also. Frequently the general bid includes subcontracts. In this event specifications for subcontracts are included in the general specification.

In the last analysis, if you hope to eliminate waste, if you are interested in saving money, if you want to avoid discussions and trouble, don't fail to provide yourself with specifications for every contract on your job.

Reasonable to Build



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A home like the one illustrated is proof that a small house can be extremely attractive on the exterior, compact and conveniently planned, reasonable to build—all at the same time.

This home, the dimensions of which are 30x27 offers you a living room, a bedroom, kitchen, dining alcove, bath, full basement and attic bedroom if desired. The 9x10 foot porch amounts to almost a fourth room. If glassed and screened for all year use, the porch will serve for a cool retreat in summer and a cozy, warm little sunroom in winter. It can be heated if the home builder desires.

Study of the exterior proves that the position of the chimney, the clipped gable ends of the roof, and simple lines of the exterior walls produce an unusually snug, homelike appearance to the exterior.

This home is suitable for almost any section of the country. It can be erected on a 33 foot lot. As the house now stands, it is designed to be erected of frame construction, stucco exterior walls on metal lath. Casement windows throughout the house lend an aid of distinction to its appearance.

In a home as small as this the house wife will undoubtedly do all her work. She will surely appreciate the labor saving kitchen with plenty of cupboard space, light, air and cross ventilation. One corner of the kitchen is set aside for dining purposes. This has pullman seats and a built-in table.

Because the house is practically square and built from stock materials as far as possible, it should prove reasonable to erect, ready to live in, including heating, lighting, plumbing. This house should cost in the neighborhood of \$4,500. Savings can be made which will lessen the cost if the home builder desires. Simple equipment will decrease the cost whereas expensive equipment will increase it.

If you want a home simple in design, combining charm, compactness, convenience; if you desire a small home with modern conveniences, and the added essential of liveability, it would be difficult to improve upon this plan.

In localities where restrictions demand fire resisting materials the exterior of this house can be changed.

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WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—We would like to know whether it is necessary to waterproof a concrete basement wall if the wall is poured monolithic?

A—Special conditions determine the answer to this. A monolithic concrete wall of the basement type is not damp proof as usually made. The cost of damp proofing is very little. Why take a chance? A small amount of hydrated lime in the concrete mixture will make the concrete more dense and therefore more damp proof. Other methods of damp proofing are employed depending upon the conditions.

Q—Will you please state the kinds of roof that are used in small house construction and tell me which is least expensive to construct?

A—Small houses are roofed with practically all kinds of roofs. In the order of their relative expense to construct, we should list these roof types as follows: gable, hip, gambrel, hip and valley, gambrel with valley. Adding a deck or cutting in dormers in any of these increases the expense. You should not allow this matter to weigh too heavily in selecting your home design. The most expensive roof to construct in the long run is the one which is not designed scientifically.

Q—We are building a home and must use a septic tank for sewage disposal. What is the recommended practice in the use of septic tanks?

A—Septic tanks are built of cement, tile, or steel. In sandy soil the ordinary wood lined cesspool gives satisfactory results. In other soils this device is not satisfactory. In any case the farther it is placed from your home the better. It must not be built near a well or cistern, as it may contaminate the ground water. Septic tanks are buried in the ground near the home. They contain two chambers. One of these takes the sewage disposal, the sediment dropping to the bottom. It then overflows into another chamber. While in these chambers bacteriological action reduces the sewage and, to a certain extent, sterilizes it. Liquid passes from the second chamber into a pipe which carries the discharge to ducts usually placed just beneath the surface of the ground and at a considerable distance from the house.

It is necessary to construct septic tanks so that the drainage empties into porous soil. This method of sewage disposal, if well carried out as to detail, is scientific; the cesspool method is not scientific. The septic tank system is not likely to become a nuisance nor a menace to health. The tanks require cleaning only at long intervals. The number of people in your home, the number of plumbing fixtures, the character of your soil, the fall of the ground—all these are factors in determining the size of the tank to install and the layout. Have the plant designed by a competent engineer.

Q—Can it be proved that insulation in wooden walls really pays for itself? What is the good of it?

A—The value of insulation is a proven fact. A great many experiments have been run by testing laboratories to determine the merits of various materials used in this way. You can obtain the results of these from the United States bureau of standards at Washington. Many state university testing laboratories have data to distribute on this subject. Insulating manufacturers report an enormous distribution of their products in the zone south of Chicago, showing that this material is beginning to be known and used even where the winters are not generally severe. Remember that insulated walls are also a protection from summer heat. Do not waste your money by insulating walls and leaving the second story ceiling not insulated. Do not waste your money by using inferior materials.

Q—What is the best kind of a kitchen sink?

A—The simplest sink is one made of enameled iron with a roll rim. Additional expense is involved, though appearances are improved, by having a sink with an apron in place of the rim. To either of these forms may be attached wooden or enameled iron drain boards. The type of wooden drain board which is removable permits cleaning of the sink and is therefore very sanitary. Sinks with a drain board cast integrally with the basin are very neat appearing, sanitary, and durable, but some housewives object to them on account of the breakage of crockery which is likely to occur in connection with such a hard material. Consult your own idea of convenience in this regard.

HELP FOR THE MAN WHO WANTS TO BUILD

WAYS YOU MAY ESTIMATE COST OF YOUR HOUSE

There are two ways to arrive at the estimated cost of your new home. First, is the "cubage estimate." This means figuring the cubic contents of your home and multiplying it by a cubic foot cost. This cubic foot cost varies in different localities. A reliable estimator or one actively engaged in home building can tell you what your local cost should be.

To arrive at the cubic content of your home, figure the height from basement floor line, half way through the attic. Count the porches at one-half their cubic contents. When porches are glazed count them at full content.

Suppose your home contains 15,000 cubic feet and your local cubage cost is 30 cents per cubic foot. The total cost of your home complete, including heating, lighting, plumbing, painting, would be \$4,500.

Taking Bids from Contractors

Cubic foot estimates vary according to the current prices of labor material and equipment. At best, on residence work, a cubic foot estimate is only approximate. It is more accurate on larger buildings.

The second way to obtain an estimate is to submit your plans, specifications, working drawings and bill of materials to three or four reliable contractors or builders. These men will offer to erect your home at a stipulated price, with the understanding that the plans and specifications are not altered.

If you prefer, you can ask bids from a general contractor, or can take separate bids from masons, plumbers, carpenters, electricians, steamfitters. By adding up the lowest bid for each trade, you can find out what the total cost will amount to.

It isn't necessary to let your house to the lowest bidder, although it is customary if the contractor is a man of reliable reputation. Bids submitted to contractors vary. Contractors may make mistakes in figuring your list of materials. Others require a larger percentage of profit.

The Highest vs. Lowest Bidder

If you provide well prepared specifications, they should include this clause: "The owner reserves the right to reject any and all bids."

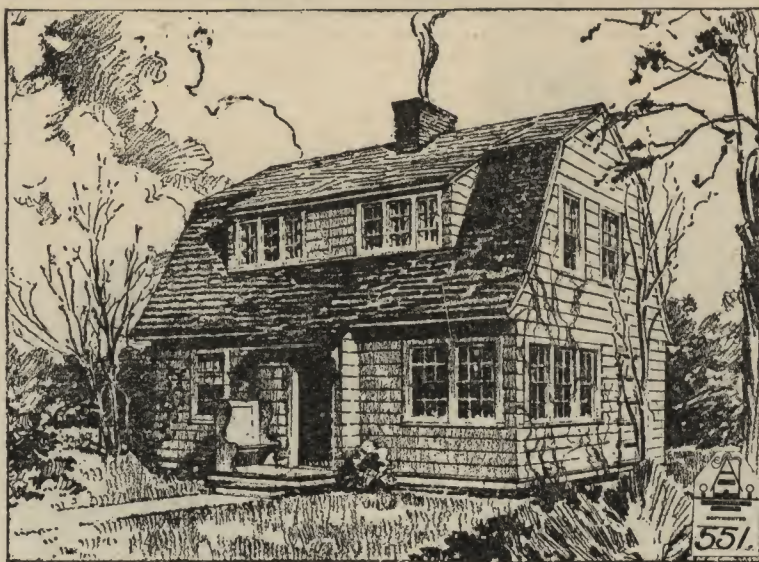
Contractors and builders understand that the lowest bidder may not be selected.

If you let the entire work to a builder, he will provide the working materials for the erection of your home complete with plumbing, heating, electric work, etc. You have a single individual to deal with, responsible for the entire job. If anything goes wrong, you can get at the difficulty quickly. When separate contracts are let, someone must see that the various tradesmen get onto the job quickly. Delays may occur which will cost two or three weeks time.

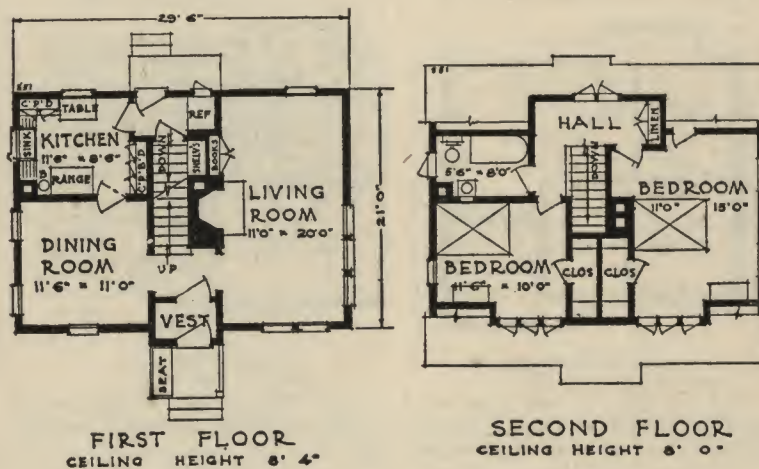
Letting a single contract may "speed up" your building operation and relieve you of much worry and endless detail.

The surest way to protect yourself against increased building cost and to arrive at an absolute and accurate understanding as to how much you must pay for your completed home is first to provide yourself with a complete and detailed set of plans and specifications.

Popular Dutch Colonial Home



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At the close of the day—when work is over—when there is time to read; time to relax mind and body, then it is that a big, comfortable living room makes its greatest appeal. On winter nights, when it is cold without, is the time you want a crackling fire on the hearth. No home today is really complete without a living room generously proportioned, with many windows and a fireplace.

One feature of this plan is its living room. It runs the full depth of the house. It has windows on three sides to let in abundant sunshine, light and air. Windows are so placed in the front that they make practically an enclosed sun porch.

A fireplace of tile with wood trim, wood mantel and adjoining bookcases, the same height of the mantel shelf, is a feature of this home.

The home is economical because of its simple, compact, rectangular plan. The gambrel roof provides sufficient height in the dormers so the bedrooms are practically full height.

This house is adaptable to most any size lot. Every room is an outside room and has windows on two sides. The house is a frame structure with concrete base, shingle roof, brick chimney, exterior finished in bevel siding. Exterior finish of this home can be changed to any other material if necessary to comply with fire restricting ordinances.

The kitchen has been carefully planned to route steps and light on housework. The icebox and handy broom closet are in the back hall. A full basement is called for.

This house complete, including lighting, heating, plumbing, ready to live in can be built for approximately \$4,800. Savings can be made to lower this cost if the owner will use simple equipment. It might be called a \$4,500 home.

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Q—What about electric receptacles or utility outlets of the various rooms of the house, exclusive of those for lighting? What do you consider necessary? Is there any plan of placing these and any advantages to be gained?

A—This matter usually receives scant attention. It should be carefully considered by the owner, with the purpose of providing electric connections where they will be most convenient. There should be outlets for floor lamps in the living room; for bell and grill in the dining room; for grill and iron in the kitchen; for floor lamp and vibrator in bedrooms; in hall, outlets for vacuum cleaner. All should be located so as to fit in with probable positions of furniture. There should be power outlets in the basement. All of these are in addition to the outlets for general illumination. Study your housekeeping; have an electric outlet installed wherever it will make housework easier and living more comfortable.

Q—Do you recommend linoleum or tile for paving bathrooms and kitchens?

A—We recommend ceramic tile for bathrooms as being more in keeping with the fixtures. We recommend linoleum for kitchens, for the reason that it is more readily cleaned and because it is easier to walk on than ceramic tile.

Q—Please advise me about the color scheme of our kitchen. The room faces north and west. We desire to paint the walls and prefer a color scheme as light as possible. Do you recommend an absolute white treatment throughout?

A—Scientific experiments made by paint manufacturers have proven that the various shades and tone of color are important factors in reflecting light from the walls and thereby increasing illumination in your home. A well painted pure white in flat tone gives you 70 per cent reflection, whereas the same wall painted in bright sage gives 43 per cent reflection. Suppose you paint your kitchen a color known as forest green. Your reflective value would be only 21 per cent, whereas, if you painted your kitchen in ivory, you would get 72 per cent reflection. The difference between these two paints and their light reflective possibilities would not only have a tendency to decrease the apparent size of your room, but it might make all the difference in the world in the cheery, bright appearance so desirable in your kitchen, whereas by the use of a dark color there is a possibility your kitchen work will be done with less speed and more fatigue. Color is a very important factor from both a health and happiness point of view. Investigate it carefully, not only the kind of color, but the reflective percentage.

Q—Are there any simple rules which a layman can use to guide him in the matter of good taste in home furnishing?

A—When it comes to actually considering the arrangement of your home, there are four important things to keep in mind. First, each room should have a center of interest. Second, the furniture should be arranged with utmost care. Third, empty space should be balanced with pictures or hangings. Fourth each room should be harmonious in color. Take your living room for an example. In quite the same way that a theme forms a dominant and recurring note in a composition, a well arranged room has a center of dominant interest to which all other furnishings in the room are subordinate or related. In your living room perhaps this dominant interest would be the fireplace, a beautiful piece of furniture, a piano, a good painting, bookshelves, or window overlooking the garden. Whatever it may be, the room should suggest as you enter it a dignity of proportion and beauty due to nice relationship between the furnishings and the open and plain spaces, the doors, windows, etc. Perhaps you have entered rooms that appear to tip forward or sideways. This is due to crowding or massing a number of pieces of furniture into a corner or against a side wall. The width, height and style of your living room will determine to a certain degree the type of furniture you will select. Each piece of furniture, each object in the room should be a study in color, form, height and purpose in order to secure what decorators call balance. Keep in mind that your home furnishing is a matter of balance. Groups of objects—a table, painting, candlestick and vase—may be balanced by a rather plain wall space opposite. There are many helpful books on home furnishing. We will be glad to recommend a list to you for reading if you desire.

HELP FOR THE MAN WHO WANTS TO BUILD

SOME MODERN TENDENCIES IN HOME BUILDING

The whole idea in present day home planning is toward compactness, simplicity, labor saving in construction and in housekeeping and standardization in building operations. All of these things are attainable in a well designed home plan, which means a completed home at lower cost without sacrificing home comforts, conveniences or beauty.

For example—Bedrooms are smaller than formerly, but with more thought toward adequate ventilation, crosscirculation of air and plenty of sunshine. Kitchens are smaller and planned scientifically to route steps and save labor; living rooms are opened up and larger. In many small homes the lower floor, with the exception of the kitchen, which is considered the workshop of the home and, therefore, requires separation, is practically opened up into what appears like one large living area. Even though the home is small, such a treatment lends an atmosphere of spaciousness.

Dining Alcoves Save

In many small homes dining rooms are eliminated. Breakfast rooms are popular and taking their place. A dining room occupies a large amount of space for the amount of time it is used each day. Some small homes provide a living room large enough so that one end can be used for dining purposes.

In present day home planning floor space is divided on the basis of the amount of service rooms provide as compared to what they cost to build and maintain. For example, the one time popular den has almost passed. Its upkeep and overhead expense is considered too great for the amount of service it gives and space it occupies in a small home.

Ceiling heights are lower than formerly. This means a saving in heating expense. Built in furniture is popular and practical. Buffets, bookcases, china closets, kitchen cabinets, inglenooks and seats are permanent and harmonize with the architectural character of the home. They do not require moving in order to sweep and clean. They are practically dirt and dustproof. They make housekeeping less tiresome.

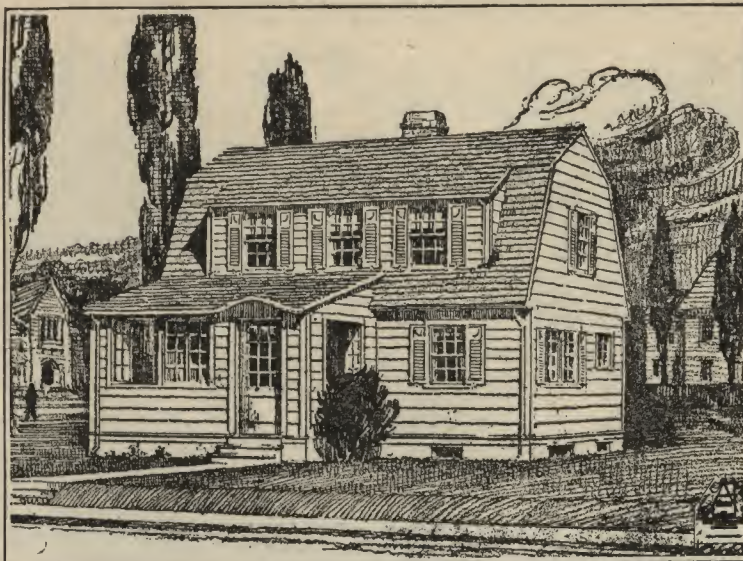
Two Ways to Plan Your Home

If you hope to build a home and save money, you must recognize modern tendencies, especially simplicity and compactness. Even though your home is small and compact, it does not follow you must live in narrow quarters and feel pinched. To the contrary, a compact home permits comforts, convenience and beauty at lowered cost.

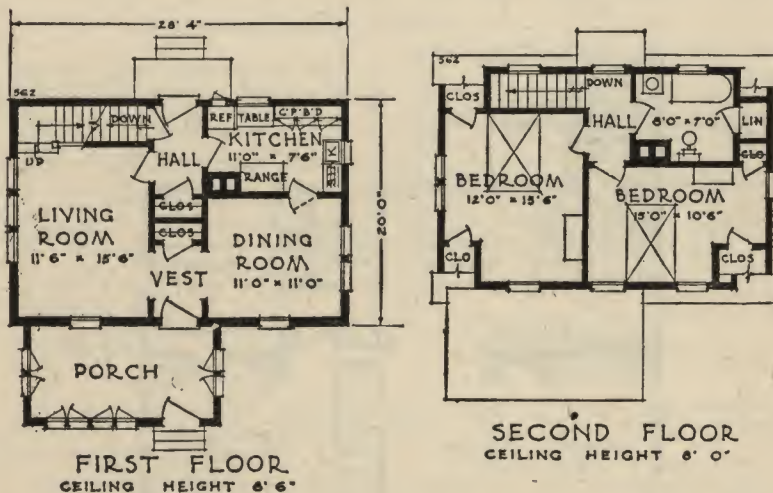
You can plan your home in one of two ways. You can build from a commonplace plan, a plan which rambles and gives you nothing distinctive. The home will provide shelter, strength, service, but will lack the very thing which gives lasting satisfaction—beauty of architectural fitness.

Or you can build from a well designed, compact, simple plan prepared by someone skilled in home planning. It may cost you a few dollars to obtain such a plan, but it will more than repay you through the savings it makes. You will obtain without added cost, compactness, comfort, liveability, service and economy in space and dollars. Such a home will assure you beauty in proportion, dignity, refinement.

Dutch Colonial With Sun Porch



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There is a homelike quality about the Dutch Colonial style. It makes a strong and lasting appeal to most American home builders. Variations of it are found from Maine to California. The spacious inclosed porch is an outstanding feature of home here illustrated which otherwise follows closely the accepted pattern upon which Dutch Colonial homes are built.

The grouping of the windows and the breaking of the eaves with a curve to accentuate the entrance adds an interesting and pleasing touch. The compactness of the plan without any unnecessary breaks in the exterior and the absence of meaningless details makes this home economical to build.

The plan calls for wide siding on a wood frame with shingle roof. There is a full basement under the house. This home can be erected on a 30 foot lot. Exterior finish of the home can be changed from wood to any other material if necessary to comply with city fire restricting ordinances.

The open stairway which ascends from the rear of the living room is a decorative addition as well as space saving arrangement. At the rear of the living room a door leads to the rear entry, thus providing easy access to the second floor from the kitchen. The kitchen is well lighted, equipped with built in cupboards and planned to save the housewife both steps and labor. A wide cased opening between hall and living room, hall and dining room gives a long and pleasing vista, which naturally increases the open, sunny effect of the first floor.

This home has abundant closet space—six closets in all. There are two light, airy bedrooms with cross ventilation and a well equipped bathroom. The cost for erecting this house complete, including heating, lighting, plumbing—ready to live in—will range between \$4,500 and \$5,000, depending upon the equipment and location of the house. Naturally, expensive equipment will increase the cost, whereas inexpensive equipment will decrease the cost.

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Q—We have just finished up the construction of our house. The ground has not been graded and it is covered with boards, old brick, and other refuse such as you always see around a new building. To whom do all these odds and ends of material belong? Who has to clean it up? Am I required to grade the lot?

A—If you have a general contractor on your building he contracted to deliver the house to you finished. This did not include any excess lumber or any other material. Therefore, you are clearly entitled to the house and nothing more. However, all the short ends of boards and other materials of that kind which you can use and for which the contractor has no particular purpose, the contractor will give you rather than haul them off. Waste material like broken bricks, spoiled cement, unused mortar, sand and so on will be removed by the contractor if the terms of the specifications require the grounds to be cleaned up after the work is done. In the same way the finished grading is usually covered by a specific agreement. If you do not have such an agreement you will have to do the grading yourself. Grade up all the surfaces higher than you expect them to be in the end—especially over the back fill—for there will be some settlement.

Q—Are there any books available which would give us good ideas about landscaping a small home? Are there any well accepted principles which could be used by the small builder?

A—A large number of books have been written about landscaping small homes. These will be found in almost any public library. The following list will prove helpful to you: Colour in the Flower Garden, by Gertrude Jekyll; Gardens for Small Country Homes, by Jekyll & Weaver; How to Lay Out a Garden, by Edward Kemp; The Art of Landscape Architecture, by Samuel Parsons; Colour in My Garden, by Mrs. L. B. Wilder; The Garden Week by Week, by Walter P. Wright.

Q—You speak of standardization in small home construction. Would like to inquire if erecting my home from a stock plan, stock sizes and standardized methods would in any way have a tendency to lessen the individuality of the home and the architectural features.

A—This will not lessen the value of your house if the matter is handled with any degree of intelligence. Distinction is obtained between two houses of identical plan design, set side by side, by varying the colors and the materials used for exterior finish. As a matter of fact, we do not recommend placing similar designed houses side by side. If they are some distance apart, say in alternate city blocks, one will hardly recall the other. If in these locations there are differences of color and material, the points of similarity would occur only to an expert.

Q—When an architect prepares a set of drawings for a home owner, to whom do the drawings belong—are they the property of the architect or the owner?

A—The standard contract between architect and owner provides that the drawings are and shall remain the property of the architect. The purpose of this is to prevent an indiscriminate use of the drawings, which are a part of the architect's services and for which the owner has paid a fee, by persons who have not paid for them and to secure for the owner the absolutely individual house for which he has engaged the architect. The architect and the owner are thus protected.

Q—Is there any accepted form which the architect recommends for bringing electric light and telephone service into a house? Should these be installed from the rear or front?

A—Bring these services in from the rear. The public service corporation service lines are usually located in the rear alley or on the rear lot line. We recommend having the telephone lines installed when the building is constructed rather than after.

HELP FOR THE MAN WHO WANTS TO BUILD

DETAILS MUST BE WATCHED IN HOME BUILDING

Many details of construction must be watched carefully to insure successful building in winter time.

Here are things to look out for. They may prove helpful to prospective home builders.

The first has to do with putting in foundations. These can be ruined entirely through the action of freezing. It is not necessary for the wall to be acted upon by frost directly, for if the soil underneath the footings should be frozen, there is almost certain to be trouble. The action of ice on footings is so powerful that it will lift a foundation wall. This action is so irregular that very great strains may be developed in the wall itself. Consequently, serious cracks are almost sure to occur.

Why and When Cracks Occur

These faults may not be seen until late in the year, after the return of warm weather, when the building will settle through the thawing of ice under the footings. This settlement will produce cracking of plaster, tearing out of nails, warping of floors and general deterioration of a fundamental kind. Therefore, be sure to see that the footings are covered with material to protect them from freezing during the most severe temperature of the winter. This is especially true if the footings rest in clay.

There always is a question whether or not concrete work done in freezing weather will be successful. This work has to be carried on intelligently to obtain satisfactory results. You cannot handle concrete work in freezing temperature as you would in warm weather. After the concrete work is finished, the first floor joists can be put on the walls and covered over with sheathing paper on the boarding, so as to protect the woodwork. Then the whole matter can be laid over until the early spring.

When to Frame a House

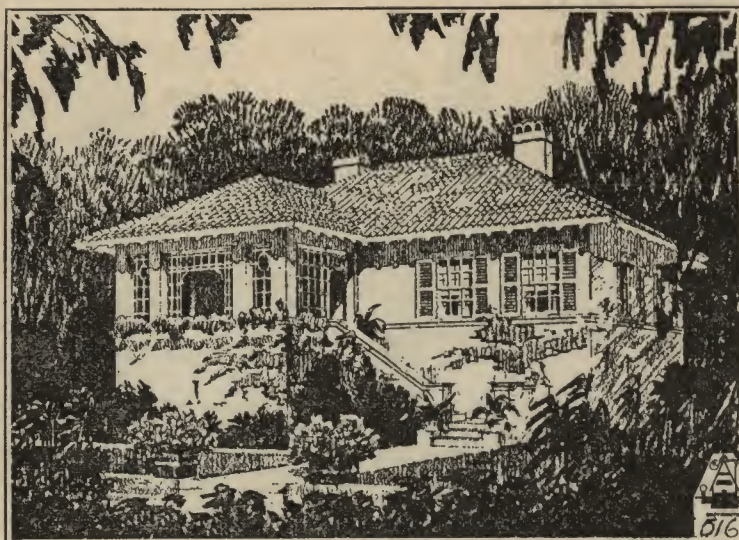
It may be found desirable to put up all the rough framing of the building at this time so as to have the building roofed in. This gives you an opportunity for an early start with lathing, plastering, plumbing, heating and other contracts and it generally makes some savings on the total operation.

After the building has been framed in this way, the plumbing and heating contractors and electric wiring men can come onto the job and put in the rough part of their work so as not to obstruct work of contractors who must follow. If the heating plant is installed, the building may be kept slightly warm for any operation which you may desire to carry on.

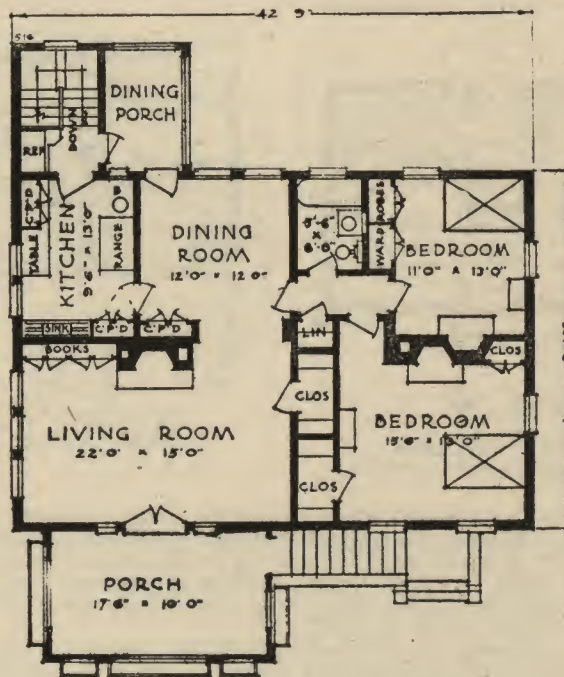
Don't forget in figuring your total expense in an operation of this kind that your funds are invested over a longer period than for a normal building operation as carried on through the summer. In other words, if it takes six months to build your house in the winter time, the carrying charges will be higher than they would be if your home could be built in half that time as it might be in the summer.

To the contractor's charge for material and labor, you should add another item of interest on invested funds for the period during which the house is being built.

HIGH BASEMENT BUNGALOW



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FIRST FLOOR
CEILING HEIGHT 9' 6"

THE high basement type bungalow has been used for a long time in many sections of the country. It costs somewhat more to construct. Even so, its popularity is increasing, for the reason that it is different from other bungalows and is a raised type of home, insuring considerable more privacy as well as protection. It has the further advantage of getting more breeze than bungalows built close to the ground. In this type of a home a garage can be included beneath the first floor without distorting the design.

Type of House—One story. **Style**—Bungalow, high basement. **Suitability**—Popular in south and west, but adaptable to any locality. **Size**—Five primary rooms, bath, porch, dining porch, basement fully excavated, no attic. **Dimensions**—Outside, 42 feet 9 inches wide, 30 feet 2 inches deep. Porch, 17 feet 6 inches wide, 10 feet deep. Cubic contents, 35,700 feet.

Exterior Walls—Frame construction, exterior stucco. **Roof**—Tile, wood or composition shingles can be used if preferred.

Cost of House—The cost to erect this house complete, according to the plans, including heating, lighting and plumbing—ready to live in—will range between \$7,500 and \$8,500, depending upon equipment and locality. Expensive equipment will increase costs, whereas inexpensive equipment will decrease costs. Eliminations and substitutions can be made, which will in no way lessen the durability of the home, but at the same time lessen the costs, such as omitting fireplaces in the bedrooms, cabinet work, tile roof and a number of other features.

Features of This Bungalow—Here is a bungalow out of the ordinary which will appeal to home builders whose tastes demand something different.

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Q—If you have a complete set of working drawings why do you need a set of specifications? Of what value are these?

A—The drawings can carry only part of the information which is needed by the contractor. They tell what to do rather than how to do it? The how is as necessary as the what. All of the general agreements which you will have with your contractor should be in writing. Such things as liability for damage, insurance, cleaning the premises, methods of payment and so on are included. These are part of the specifications. That document tells also what quality of materials is to be furnished. You invite trouble by building without complete specifications.

Q—The brick in the face and hearth of our fireplace is spattered with mortar that the masons did not clean up. We tried to scrape it off, but we only made matters worse. Is there any way to remove this.

A—The best method is to use a dilute solution of muriatic acid and with a wire brush and vigorous brushing. Cover all the wood nearby before you start to work so as not to spatter it with the acid. Increase the strength of the acid until you get the stains removed. Avoid scrubbing of the mortar joint. Clean up the work with clear water when you are through.

Q—We plan to have the outside walls of our house of brick. We want the bricks laid in an interesting way, mixing up the short and long dimensions of the brick. How can we get this effect?

A—The short dimension is called the reader. The long dimension is the stretcher. Headers and stretchers may be alternated in every course for Flemish bond or you may have alternating courses of headers and stretchers for English bond. Other combinations of headers and stretchers can be made so as to obtain beautiful results. The mortar joint is important in the matter of appearance. Tell your architect what you want and he will specify a method to satisfy you. Have panels of brick laid up on the job so that you can see what the effect will be.

Q—We are going to put in the foundations for our home this fall and let the building stand that way until spring. I understand from your articles that if freezing occurs underneath the building the walls will be ruined. How shall we avoid this freezing?

A—After the foundation walls are up put on the first floor joists and then backfill—that is fill the space between the excavation and the wall with soil. Cover the footings inside the walls with straw and pile cinders or earth over this until you have built up a blanket several feet in thickness. In regions of severe winter it is desirable to use manure in place of straw for the covering of footings.

HELP FOR THE MAN WHO WANTS TO BUILD

WHERE QUANTITY SURVEY AIDS IN HOME BUILDING

Suppose you were going to assemble the parts for an automobile? Suppose you were going shopping for parts with the idea of putting them together and having a car that would give you satisfactory results.

The chances are you first would provide yourself with an accurate buying list. You would want to be perfectly sure that the parts would fit and that you had only the parts absolutely necessary.

Quantity Survey Is Buying List

Home building requires a buying and shopping list just as the building of a motorcar. This list is called a quantity survey, which is the professional or technical name for what is known to the building material dealer or tradesman as a bill of material.

In the past it has not been customary for the home builder to provide himself or the tradesmen with such a list. In fact, the use of a quantity survey is rather new in this country. It has been considered a necessary building document in other countries for many years.

Most home builders supply the tradesmen with plans and specifications. The tradesmen then "take off" the quantities, sizes and grades of materials required for their respective jobs. Building specifications usually define the building operation and indicate trade names for certain fixtures, but when it comes to the amount or quantity of shingles, studs, flooring, excavation, bricks, cement, doors and windows, this is usually left to the tradesmen who estimate on the work.

Helps to Eliminate Waste

It is easy to see that mistakes in estimating are apt to happen. If you have too few bricks or too little siding it means another trip to the dealer. This takes time and involves "extras" for hauling. If you buy more than you require it means waste.

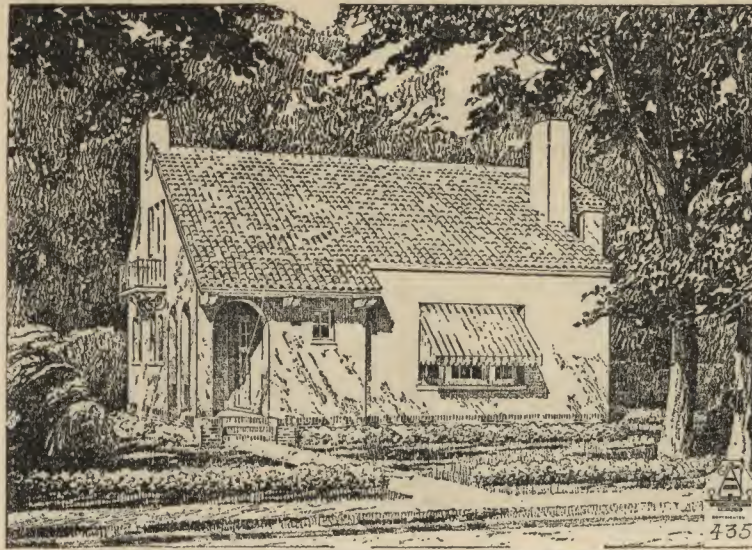
The use of a quantity survey assists greatly in accurate buying. Waste is one of the reasons why building costs frequently run higher than they should. Home builders are seeing the advantage of using a quantity survey and supplying copies of it to the tradesmen. Surveys are made by experts whose business it is to list all the items called for on the plans.

It makes no difference whether your home is small or large, a quantity survey will prove valuable. It will assist you in getting estimated costs of materials because it gives you the total number of bricks, 2x4's, joists, sacks of cement, etc. With the quantity survey you can check deliveries.

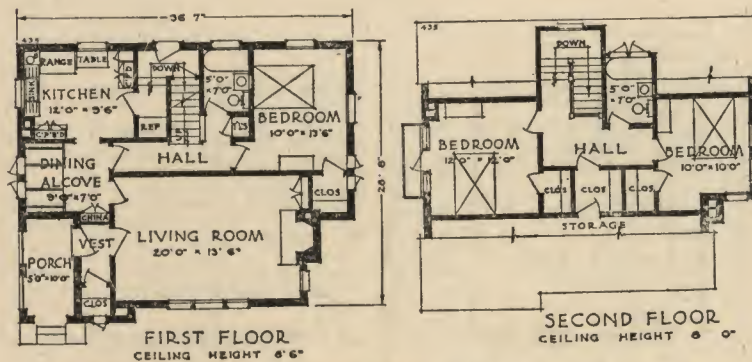
Most jobs carry what is known as a contingent fee as a protection against inaccurate buying. This contingent fee frequently amounts to as much as 10 per cent. If your quantity survey is carefully prepared, it should assist in lowering this contingent fee.

In addition to the quantity survey, don't forget to provide yourself with a well prepared set of specifications. This document will guide you in matters of heating, plumbing and lighting. It will specifically state what you expect from your tradesmen; the quality of material and workmanship to be supplied.

Spanish Mission Exterior



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The so-called Spanish Mission style is both a popular and practical type of home if you want to build a stucco house with a simple yet distinctive exterior.

The house here illustrated suggests Mission style rather than literally following it. The free treatment makes it a home suitable for almost any section of the country, and it will build well next to homes different in style. The rich tile roof, the recessed porch with arched doorway, the iron balcony around the chimney, the charming triple window in front, are only a few of the distinguishing features of this home.

The house is planned to be built of stucco on hollow tile wall and a tile roof. The plan calls for a part basement with laundry, vegetable room and heater. The house can be built on a 48 foot lot.

The floor plan is as individual and practical as the exterior. A corner entrance porch opens into a small vestibule which has an outside window and a coat closet. The large, airy, well lighted living room is one of the outstanding features of the excellent plan. At the far end is a handsome brick fireplace and wood mantel; on one side is a window and on the other a built in table, built in seats and an especially good built in china closet extending from floor to ceiling. This large dining alcove is conveniently placed between kitchen and living room. It has almost all the advantages of a dining room.

The kitchen is small, but planned to route steps and lighten house-keeping. This house provides two baths, either one of which can be omitted if the owner desires. One bedroom on the lower floor is a desirable feature.

The cost of constructing this house complete, including heating, lighting, plumbing, ready to live in, will range between \$6,500 and \$8,500, depending upon the way in which the house is equipped and finished. Expensive equipment will increase the cost, simple equipment will assist in lowering the cost. Composition shingles can be used on the roof if the owner desires, and the home can be constructed of frame with stucco on metal lath.

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WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—What is the recommended practice in regard to placing metal lath inside a small home?

A—Metal lath manufacturers have analyzed this problem and have said that the following locations are the five vulnerable points of a house:

- First—On all stud bearing partitions and fire stops between studs. (Fire stops to be metal lath basket shaped to fit between studs coated with plaster or cement and filled with incombustible materials).
- Second—On ceilings under inhabited floors, especially over heating plants and coalbins.
- Third—At chimney breasts, around flues and back of kitchen ranges.
- Fourth—For stair wells and under stairs.
- Fifth—As a base and reinforcement for exterior stucco.

These recommendations, while desirable, are not always to be followed on account of initial expense and, in the case of some kinds of exterior stucco, on account of metal lath not being suitable. Architects have found it particularly desirable to have metal lath wherever wood joins masonry, wherever excessive vibration might loosen the plaster, and wherever a degree of fireproofing is desired. It is generally used as a base for exterior stucco, being especially desirable in this connection when backplastered without sheathing.

Q—Will you please tell us what is meant by laying shingles random pattern?

A—This is a fanciful way of laying shingles. The simplest way of laying shingles is to give them uniform exposure throughout the roofing planes with straight courses from eave to eave of the roof. An elaboration on this is to double every third, fourth or fifth course down the roof, the wider bands being at the eaves—the narrower at the ridge. The effect of this is to increase the interest of the roof. A more elaborate treatment involves laying the shingles without respect to the usual horizontal courses, so that they do not run straight across the roof. This gives a very informal appearance to the roof. If the shingles are stained various shades of color, a very remarkable and lively effect is gained. This method of shingle laying is considerably more expensive than the others.

Q—Does a fireplace draw better if it is placed on an inside wall?

A—Yes, because the flue is not chilled so easily in this position. This increases the velocity of gases in the flue, which is another way of saying that the draft is better. With the flue on the inside of the house you will not have quite so much difficulty getting a good draft in the early morning as you do in the case where the flue is on the outside.

Q—Is it good practise to insulate the roof of a house? Are there any savings to be gained in heating? Would insulating the ceiling of the second floor be enough without attempting to insulate the roof in the attic?

A—We recommend insulating between the rafters wherever they form part of the walls of rooms as in the gambrel roof types used in Dutch colonial architecture. Otherwise it is easier and cheaper to insulate between the ceiling joists of the second story. In this way you are not losing heat in warming the attic space.

Q—Do you consider the gambrel type of roof as cheap to build as a plain gable roof? Will the gambrel roof be as weather proof as the gabled one?

A—No. The gambrel type roof requires at least two sets of rafters for each side of the house. This means more labor, more lumber, and, consequently, more expense. The gambrel type roof is practically as weather proof as any other.

Q—Is thermostatic control practicable and possible in a warm air furnace?

A—This type of heat control can be installed in connection with any kind of heating device. It is practical. It will help the uniform heating of your house and will pay for itself in the long run in fuel savings.

HELP FOR THE MAN WHO WANTS TO BUILD

3 METHODS YOU MAY FOLLOW IN BUILDING HOME

When it comes to actually building your home there are three ways open for you to proceed. First, by employing a general contractor who assumes responsibility for the entire job at a fixed and agreed upon price. Alterations and changes will cost you extra.

Second, by employing day labor, which means engaging a contractor or builder to supervise the work and supply the materials and labor. He makes you a cost charge plus a percentage or lump sum for profit to himself for his work. If you can afford it, this is an excellent way to build. There is no disposition on the part of the builder to neglect or slight any of the details called for in your plans and specifications.

Changes Cost Money

One disadvantage of day labor is that you are never quite sure what your total cost will be. You can estimate it in a general way, but 9 times out of 10 it will be larger than you expect. On the day labor basis there is a tendency on the part of owners to change and alter plans. Don't forget that changes cost money.

If you are building a small home, the contract method is perhaps the best to employ for the reason that you know what you are expected to pay before the work begins. If you select a reliable builder, you will get full value for your dollars.

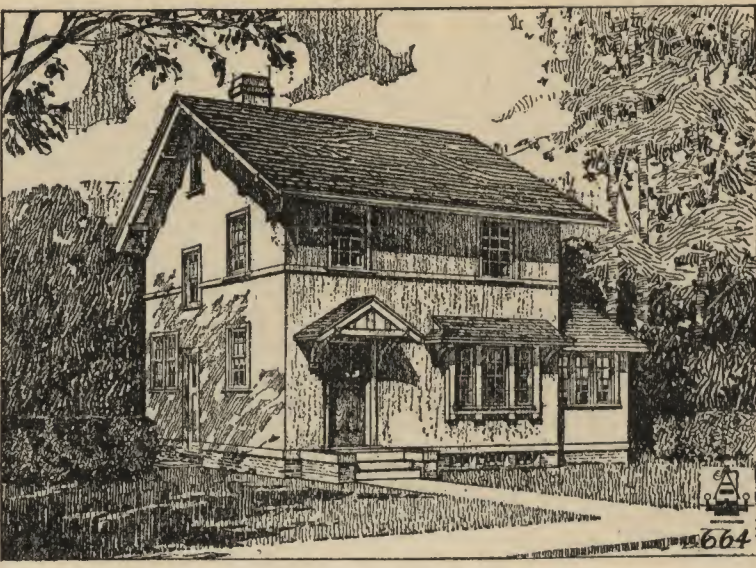
Third, if your home is small, 3, 4 or 5 rooms, you may decide that with the help of a carpenter or two you can do some of the work yourself. In this event you will, undoubtedly, be on the job to supervise the work and to see that your home is built to meet your satisfaction. A surprisingly large number of homes are built this way. It is what is called the "rule of thumb" method of building because many home builders proceed to erect dwellings with only tentative and hurried penciled drawings, trusting to luck as to the outcome of the house. This is an expensive method to employ unless you first provide yourself with a good set of plans and specifications. Don't forget that going it blindly, taking chances and depending upon the advice of workmen who may be thoroughly trained craftsmen, but not designers, may increase your building cost even though your home is small.

How to Save Money

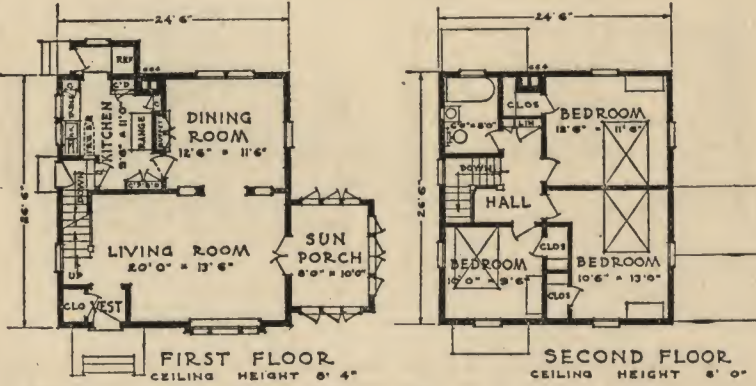
If you decide to build and do most of the work yourself you can, undoubtedly, save money if you first protect yourself with complete and adequately prepared plans. These documents will give you all the information you require to completely and satisfactorily finish the job.

A contractor, either by day labor or contract, must charge you for supervision. This item of cost varies, depending upon the size of your home and the length of time required to build it. If your home is small, it is possible that with a good set of drawings and complete specifications you can do most of the supervision yourself, although in the long run it usually pays and is better business to put your building operation into the hands of a reliable builder or contractor.

Adaptable to Various Materials



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Here is a home plan to meet requirements of home builders who desire distinction and style at moderate cost, along with standard equipment and all home conveniences. This plan is interchangeable, that is to say, the home can be built of frame with siding exterior, stucco on metal lath, cement block with stucco finish, brick or hollow tile and stucco if desired.

From all points of view this home is practical and economical and yet there's no niggardly scrimping of essential comforts or beauty of appearance for the sake of cutting down on building costs. You will find numerous conveniences and comforts such as are generally found in larger, more expensive dwellings.

Observe the handsome builtin sideboard in the dining room, the delightful windows in the living room, the unusual amount of closet space, the many windows in the sunparlor. While this home is square in plan, nothing could differ more from the hackneyed appearance of the average square home.

Notice the charming front doorway, the quaint hood which offers protection against the weather, the coat closet in the vestibule and the way the vestibule opens close to the stairs so that if you want to go directly upstairs you don't have to walk across the living room to reach the stairway.

Each room in the house has cross ventilation and is an outside room. The kitchen has been planned to route steps and save labor. The refrigerator is placed in the rear vestibule opening directly from the kitchen. A door on the vestibule prevents drafts from reaching the kitchen.

It would be difficult to find a more compact plan, and, on observation, you find not an inch of waste space. The home was planned for a 42 foot lot. By decreasing the width of the sun porch the house can be placed on a 40 foot lot.

This house complete, erected according to the plans which call for frame construction, exterior finish stucco, shingle roof, including heating, lighting, plumbing, ready-to-live-in would be in the neighborhood of \$6,000.

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Q—Will you please advise me if there is any standard distance which a house should be placed from the front line of a lot?

A—There is no standard distance. This is usually governed by the customary practise of the neighborhood. Restrictions in deeds sometimes fix this distance. Houses are usually set too close to the front line. Set your house to line up with those of your neighbor.

Q—The design of our house calls for blinds. The style is Dutch Colonial. Are we obliged to use the blinds in order to carry out the style?

A—No. The effect of the blinds is very good in Dutch colonial, but they are not absolutely required. It is preferable to have the blinds operating on hinges rather than nailed to the wall. They should be designed large enough to absolutely close the window opening—though they may be in two leaves to accomplish this. An indiscriminate use of blinds protecting certain windows in one story and not the others is not the best practise. As a principle, do not use any material or thing that does not have a real purpose.

Q—What are the advantages of using thin and thick doors throughout the house?

A—We presume that you are inquiring about relative merits of doors 1 1/4 inches thick and those of 1 1/2 inch thickness. The thinner door is lighter to operate and costs about \$1.50 less in birch. The heavier door is more substantial and durable, will not slam so hard if the wind happens to catch it, and has a better architectural appearance. We recommend the thicker door for all outside doors and for inside communicating doors, but it is customary in the interests of first economy to use the 1 1/4 inch door for communicating doors. This size is satisfactory for closet doors; 1 1/2 inch doors are used for wardrobes.

Q—Do you recommend white enamel as a practical interior finish?

A—White enamel is frequently used throughout the home. It is easily cleaned and washed. It has the advantage of exposing dirt and in this respect it serves as a stimulant to housekeeping cleanliness. It can be applied to give you a high gloss or dull finish. There is another point of view which some people hold about enamel finish, namely that because of its high gloss it reflects light, glistens and shines at the expense of other objects in the home and, for this reason, it has a tendency to disturb the harmonious color effects of the room. Personal preference is a matter which you decide the kind of finish appropriate. Kitchens and bath rooms always are desirable in finish easily washed. Enamel under such conditions is entirely appropriate.

Q—You speak of the cost of building a home varying with the kind of specification that is supplied. Will you tell me what you mean by this?

A—A house costs more or less depending upon the quality of finish that is used and the character of the mechanical devices—and to what extent luxuries are included. By this we do not mean to infer necessarily that the simpler things are any less durable or that they are not, if well handled, of good appearance. You can reduce costs on your house if you use the cheaper woods for flooring and wood trim and if you do not employ the more expensive methods of finishing the surfaces. This applies all the way through the house and to a great many different items. You can double the amount of money you must spend for heating and plumbing fixtures without improving the accommodations of your home or making it more comfortable to live in. Remember that woodwork fittings like linen closets, kitchen cabinets, ironing boards and similar items are expensive.

Under the headings of luxuries may be listed sun porches, window blinds, partitions in the basement, extra china closets, built in cupboards, and so on. The desirability of these things is unquestioned, but the owner may not be able to afford them. There are a great many items of this kind all through the house. The home builder must decide what he requires as to room space and how completely and with what elaboration he can finish the building. The cost of construction can be varied at least 25 per cent in this way. If you will scale down your requirements as to finish and equipment, you can build a substantial and comfortable home at a surprisingly low figure.

HELP FOR THE MAN WHO WANTS TO BUILD

THINGS THAT MAKE YOUR DOLLARS COUNT

If you are planning to buy or build a home, what are the things to look for if you want to make your dollars count? Are there any ready to use rules for buying or building that inexperienced people can use in deciding for themselves whether the house to buy or the home to build is a good investment?

The division of building and housing, department of commerce, United States government, recently asked these questions of the Architects' Small House Service Bureau. The idea was to list and have available 25 or 30 essential points that could be settled by home builders or buyers themselves before investing their money.

Ten Points to Consider

The answers to these questions and the 20 points come under two main headings of design and construction.

Under the heading of design, the Small House Service Bureau says, in its reply to the department of commerce:

First, the house should be simple and attractive. Ask yourself this question, "Do I want to live in a house that looks like this 365 days of a year for many years?"

Second, what about the neighborhood? Are the houses in the immediate vicinity and the people you will have for neighbors the kind that you want to live among and see 365 days of a year for many years?

Third, is the setting of the house convenient to the street and are the grounds well planted and well kept? Are there shade trees?

Fourth, how does the house face with respect to the sun? Will you have sunlight in your living rooms and sleeping rooms, and is provision made for cross ventilation in these principal rooms?

Fifth, are your rooms conveniently located so that the housework can be easily carried on and so that you can have some privacy for yourself and family? With the kitchen arranged as it is will the kitchen work take too much effort? Can you get to the bath room without going through other rooms?

Provide Many Conveniences

Sixth, is there plenty of closet and storage space, a closet in each of the bedrooms, a cloak closet convenient to the front door?

Seventh, try the stairways. Are they easy to climb, and is there plenty of head room? Will there be a draft down stairs into the living room?

Eighth, if there is a cellar or basement with heating plant or laundry are these easily get-at-able from the inside of the house and the outside?

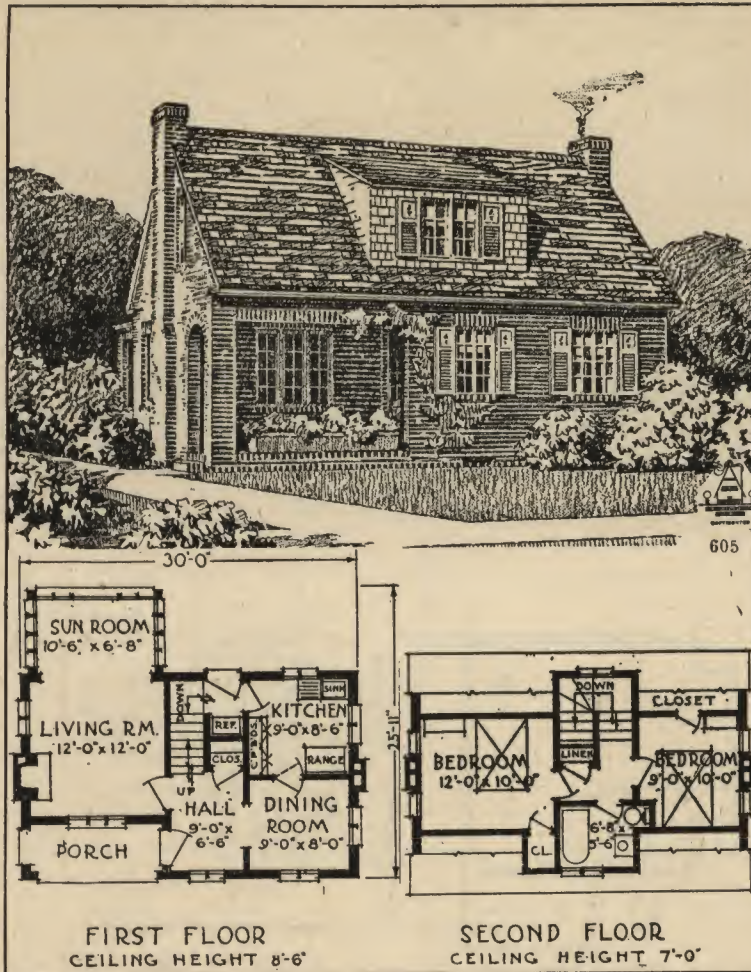
Ninth, has each room ample light and a comfortable feeling and, most important, is there a place for your beds, bureaus, piano and other special furniture?

Tenth, are the electric and gas outlets conveniently arranged for your comfort and use?

Under the heading of construction, there are two different points of view

COZINESS AND COMFORT

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If you are looking for a small home of distinctive design, compact plan and a type that is home like in character, this story and one-half house deserves study.

It is difficult to designate its style by any particular name. It is architecturally sound and thoroughly good and expresses a genuine comfort in every way. It is what is usually called a story and one-half type, but contains nearly as much room as though it was the full two stories.

Its construction is of brick, shingle roof and shingle dormers. The windows are casement, insuring an abundance of air in warm months. The plan is compact, and the porch is contained within the main body of the house, an arrangement which helps to reduce the cost of building.

An attractive Colonial fireplace and a sunroom dominate the living room. The dining room, or dining alcove will be found quite adequate for this home. Kitchen is reached through an entry, with a place for the ice-box and ample storage cupboards. There is a fully excavated basement beneath the house, except under the entrance porch. Basement contains heating, laundry and coal rooms. The second floor contains two bedrooms, affording ample cross ventilation, insuring a cool second floor, with closets for each.

The cost to erect this house complete, according to the plans, including heating, lighting, plumbing, ready to live in, will range between \$5,000 and \$6,000, depending upon equipment selected by home builder and locality.

Outside dimensions of the house, 30 feet wide, 25 feet 11 inches deep.

It would be difficult to design a home which offers more for the money than this one.

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—one for the house that is to be built, and one for the house that already is built?

For the house to be built your best insurance is to build from plans that are complete enough to insure good construction throughout. Have your plans designed by someone who

knows how, when and where to spend your dollars to buy the most in return in service, comfort, convenience and quality.

This is the first of two articles to appear in this column on 20 points to look for in building or buying a home.

WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—Our house is just finished and we find to our disappointment that there is not enough room above the stairway so that one can go down comfortably. Can this be fixed without tearing down the whole stairway?

A—The proper answer to this question must depend upon the arrangement of your house. It may be that the requirements for walls and passages do not permit of an extension for additional head room. It may be possible to improve your stairway through the building of a bulkhead where the stair passes underneath the floor. The time to obtain proper head room in the stairway is when the plans are being drawn. It is impossible to have this accurately worked in plans that are produced over night.

Q—Why is that houses built in the time of the Revolution still are standing in good repair while some of the houses in the block where I live, built within the last 8 or 10 years, look as though they were about to fall down?

A—Wooden houses built in the Colonial period were framed with heavy members of carefully selected timbers. Frames were braced so as to give great resistance to any motion that would throw the walls and floors out of alignment. In present day framing we use smaller pieces with a larger number of them than in the old type of framing. It is thoroughly possible to get with these construction as permanent as we find in the old buildings. This means adequate bracing and good nailing. Do not omit sheathing or subflooring. Bridging and bracing are an insurance against failure. Get a good job of framing even if you have to omit some luxury on account of it.

Q—What is the difference between two coat plaster and three coat plaster work?

A—The first coat of plastering termed the "scratch" coat is pressed into the lath so as to form a key. This coat and its "keys" are responsible for holding the plaster plane on the wall. The second coat is the "brown" coat—so-called because it is less rich in cement than the scratch coat and is therefore brown in color. This may be rubbed down to a sand coat finish or it may be painted, giving a type of two coat work. The third coat is the "putty" coat. This is a mixture of rich lime plaster with about half its volume of gypsum. This coat may be applied immediately upon the scratch coat without the brown coat for a very satisfactory type of two coat work. It may be used in residences with slight sacrifice to desirable qualities and with considerable economy. Where rigidity is not important two coats are sufficient whether made up of the scratch and brown coats or of the scratch and finish coats.

HELP FOR THE MAN WHO WANTS TO BUILD

UNIT HOUSE AIDS IN SOLVING YOUR COSTS' PROBLEM

The unit home is a type that builds itself little by little as the owner has the money to spend or as the size of the family increases. One of the principal objections by many people to the small bungalow is that sooner or later the occupants will want more space and be compelled to sell or purchase a larger home.

The unit home solves this problem, for additional units may be built as desired and the house will look attractive after the completion of each unit. The original plan provides for the addition of each unit at a minimum cost. No heating or plumbing fixtures need be moved, for in these matters the first unit anticipates the addition of other units.

Many Advantages in Unit Home

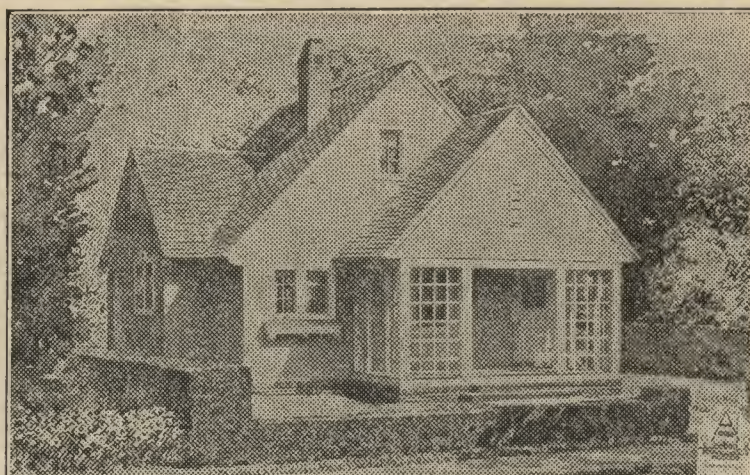
The unit house is built so that the first unit is large enough for a small family. It provides a large living room, bedroom, kitchen, bath, full basement, and a complete equipment of heating, plumbing and lighting devices. The cost of the first unit will be about two-thirds of the cost of the complete house. Thus if the complete house costs \$5,000, the first unit would cost about \$3,500. This great reduction in the first cost of a modern home should make it possible for thousands of families with small amounts of money to spend for home building to begin the realization of a complete home for themselves. An advantage of the unit house is that the owner of a good lot can have the entire home financed. His monthly payments would not be more than the rent of an apartment with the same number of rooms. He would be paying off the principal and also have larger rooms with a garden and a yard. The unit house is built so that there will be no waste of materials when the new units are added.

Features of Unit House

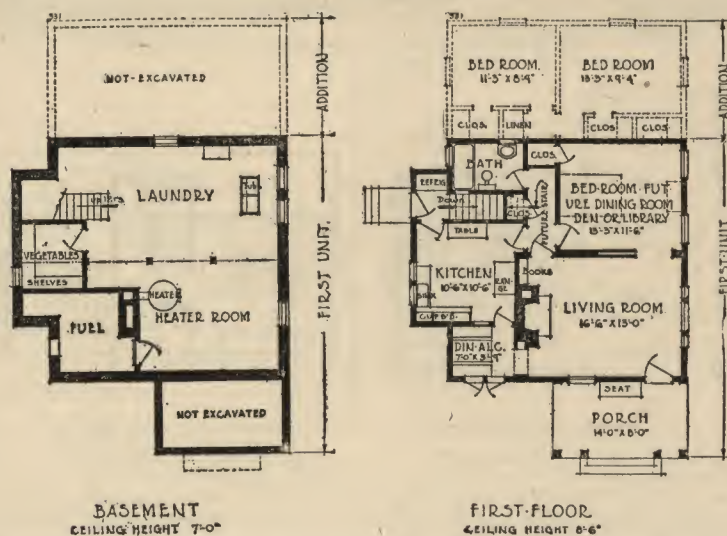
There is a fine charm about this stucco home whether you consider it in its original plan or after the additions have been made. In the original plan there is a living room of generous size with a fireplace and built-in bookcases, a dining alcove, a kitchen of modern design thoughtfully arranged in consideration of the housewife, a bedroom with a generous closet, and a modern bathroom. In the first unit a stairway is provided to the full basement from the kitchen. When the additional units of one or two bedrooms are provided the first bedroom becomes a dining room. Additional space in the attic is available to the owner at any time he wishes to complete the stairway.

The cost of erecting the first unit complete according to the plans is approximately \$3,800. To complete the house the total cost would approximate \$5,700, depending upon equipment. Frame structure, stucco exterior on metal lath, shingled roof either composition or wood, brick base

A New Idea in Home Building



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course form the backbone of this house.

Flexibility of Plan Practical

The success of a unit house depends a great deal upon the flexibility of the arrangements which it provides for future growth.

It is one thing to plan a home which is forever complete whether it has three rooms or five rooms. In such a case all the rooms have a perfectly definite function to perform. But when the original three rooms are increased to five, the functions of the original rooms have to change. It is in just this flexibility that the design presented here has unusual merit. In the original scheme the family will eat in an attractive dining alcove or in one end of the living room. When the two rooms are added, they become bedrooms connecting on to the original hallway. The old bedroom can then be used as a dining room, library, den or in an emergency as a third bedroom. If used for a dining room it is entirely convenient to the kitchen; if used as a bedroom it is convenient

to the bathroom; as a library it has sufficient seclusion.

Home builders who follow the unit plan in erecting a home perhaps do not realize they are continuing an old time custom. Many of the historic monuments of the old world were built little by little as people had money for them. Frequently a cathedral was in the process of construction for several hundred years, during which father, son, grandson and great-grandson worked on the same building and details. Present-day home builders are more fortunate in many ways. The unit plan for a home can be completed when the home builder has sufficient means and in a shorter time. At the same time, he need not be ashamed of building little by little according to his means. The unit plan offers the way for flat dwellers to become home owners on easy terms, thus securing all the advantages that a home provides—home grounds, a kitchen, garden, and above all else, the satisfaction, pride and savings which come only to those who own their own homes.

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Q—We want to let the contract for our house, but we find that we do not have quite enough money. We must in some way trim out about \$500.00 from the lowest proposal that we have received. Looking over all the advice that has been given us we see that there are three ways to do this; first, by omitting all of the brick base course, chimney stack and fireplace, and the brick steps at the entrance; second, by omitting the porch; and third, by leaving out the kitchen furniture, using paint instead of enamel for interior finish, using cheaper plumbing and heating fixtures, leaving out certain closets, tile work, linoleum, and other incidental things of the same kind. We do not want to leave out any of these things. Can you tell us what else we might do? If not, which of these things do you advise omitting?

A—Our advice to you is to omit the porch. Our reason for this is that the other things you list involve a permanent cheapening of your home. You can add the porch at some later time. It would be difficult, if not impossible, for you to put in the brick work and chimney stack at a later period or to revise the plumbing and heating or the finish work. If you must reduce expense try to eliminate only those things which can be added at a later time, when you have the money, without losing any of the work which you must have done now.

Q—In correspondence we have had with you we observe that you advise building so as to increase resale value. What do you mean by this?

A—The value of a property depends upon a good many factors. One of these is the location of the property, another is the type and size of the home, a third is the character and quality of the home, its conveniences and accommodations, its type of construction, materials, and appearance. A house of high resale value must have logic, strength and beauty.

You decrease the resale value of your house when you use materials of low depreciation. An unusual home, however suitable it may be to your particular requirements, is very often difficult to sell. When you select your mechanical devices try to be guided somewhat by what most people like.

If you can afford a fireplace, brick base course, linoleum kitchen floor, tile bath floor, and other meritorious materials and equipment of the kind, you can generally get more money for these when you sell than what you paid for them.

HELP FOR THE MAN WHO WANTS TO BUILD

PROPER WOOD FRAMING VITAL NEED IN BUILDING

No matter what kind of a small home you build there will be some wood framing about it. Even though your house may have an outside masonry wall of brick or hollow tile or cement block, the floors of your home and partitions will probably be framed of wood. What follows is intended to help you avoid trouble in this important part of your home building.

Many houses built of wood in the colonial days, houses now more than 100 years old are still standing in good repair. It is interesting to compare these old houses, which are in such fine condition after the lapse of so many years, with many of the small homes built today which go to pieces after a few years.

Colonial Homes Are Models

If you study the methods of framing used by builders in colonial days you will find the answer. The old buildings were erected of more carefully selected timbers, of better size and condition than are commonly available today, and, what is of even greater importance, you will find in the old colonial houses that the essential braces, which are absolutely necessary to secure rigidity, were supplied.

Proper bracing is the greatest factor in the long life and durability of these old homes. Let us see if the same principle cannot be applied to our modern system of building in wood.

Framing in wood today involves the use of a great many small pieces, much smaller than those used in the colonial period. These small pieces must be laced, braced and bound together tightly to secure permanent construction, so that the whole frame or skeleton of the house will act as a single unit. This unified frame secures the walls so they will not get out of plumb, so that the floors will remain level. Bracing of the pieces keeps them from turning and twisting. It prevents in a large measure such common faults as cracked plaster, squeaking floors, doors that will not close, windows that stick, warping of finished woodwork and many other defects.

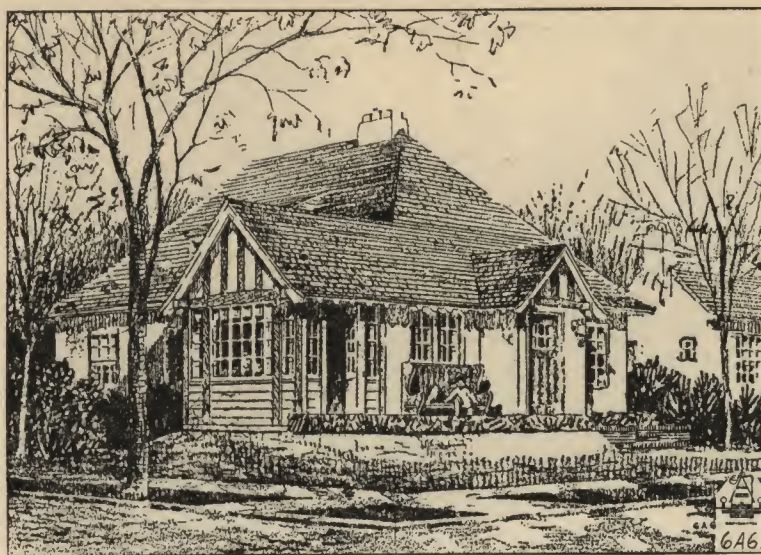
Brace and Nail Is Secret

Don't forget that a well braced frame is absolutely necessary if you don't want your home to depreciate in a hurry. Brace and nail—brace and nail—is the secret of substantial framing in wood. These essentials, with good materials of proper size, will insure you against quick and excessive depreciation.

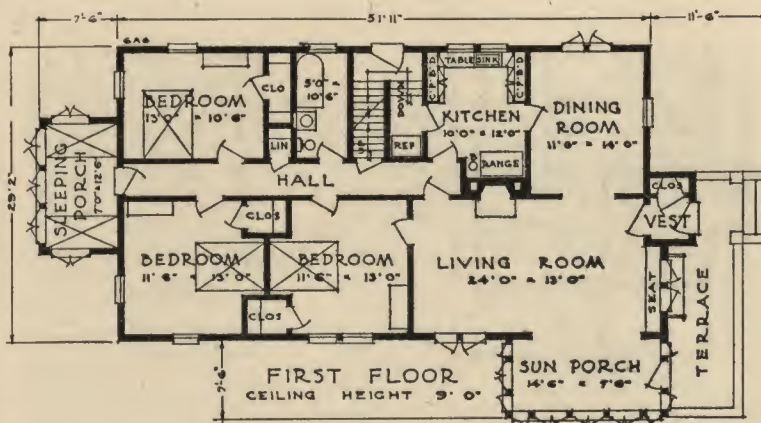
It is a waste of money to frame your house cheaply. The tendency of many home builders is to spend money for things that they can see. Home equipment and devices immediately useful or entertaining may seem more important. It is easier to spend money for fine finished floors than for braces between the joists which are hidden behind the plaster. Money saved by omitting sheathing or insulation may help to buy a piano or a radio, but don't forget that you pay for skipping on bracing, sheathing and lack of insulation in the end.

Remember if you do not get these things in the first place, you must pay fancy prices in the long run by endless plugging up and repairing and

COLONIAL WITH SUN PORCH



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THIS bungalow with a mild English flavor has three bedrooms, sleeping porch, living room, dining room, kitchen and bath, all on one floor. In addition it has a generous, well lighted and ventilated attic. The plan provides for a part basement, including laundry, heater, fuel and vegetable rooms.

The exterior is finished in stucco, shingle roof, on frame construction. In the sleeping porch and sun room siding is used up to the window sills. The gable above the sunroom is finished in stucco and half timber. This bungalow will require a 47 foot lot. It is especially well adapted to a corner lot.

A pleasing feature of the exterior is a patterned brick terrace, with a cement coping and steps before the house. Both the sunroom and the vestibule open directly on this terrace.

A wide cased doorway connects the spacious living room with the sun porch, thus increasing the size of the living room. A fireplace, with wood mantel and brick facing is a living room feature.

The kitchen has direct connection with the dining room, side entry and inner hall. The kitchen is well lighted and planned to lessen steps, as well as labor.

Sleeping quarters are separated from the living section of the house by a hall, and the sleeping porch is a very desirable feature.

Here, beyond a doubt, is a well arranged bungalow with splendid accommodations and a simplicity of design that should keep it within reasonable building costs.

To erect this house complete, according to the plans, ready to live in, including heating, lighting and plumbing, the cost will range between \$7,500 and \$8,000, depending upon equipment selected, by the home builder, and the location. Eliminations can be made to lessen the cost, and by simple equipment.

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high coal bills, and a steady stream of money paid out for small, nagging repairs.

This is the first of two articles to appear in this column on "The Value of Proper Wood Framing."

WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

Questions addressed to the paper will be answered by the Architect's Small House Service Bureau of the United States, Inc., controlled by the American Institute of Architects and indorsed by the Department of Commerce, United States Government. Inclose self-addressed envelope for reply.

Q.—What makes a good paint for outside work? The house next to mine was painted last year, and it already looks as though it needed repainting. My house was painted two years ago. It looks better than my neighbor's. What is the reason?

A.—A treatise on the chemistry of painting would be necessary to answer your first question fully. In principle, paint consists of a vehicle, which is usually an oil, and which will harden on exposure to air, combined with a pigment which carries the coloring matter. A good job of painting depends on the kind of oil used, its treatment in manufacture, the properties of the pigments used in the mixture, the kinds of pigments employed, and the quality of workmanship. You cannot get a good job with good paint and poor painting. Good painting with poor workmanship does not give satisfactory results. You must have good workmen and have them use painting materials that are well known as superior products. Insist on having all the materials to be used delivered on the job in unopened containers with the manufacturer's label attached. High grade ready mixed paint, upon which you may rely with confidence, is available for outside work. Paint mixed on the job made with a combination of white lead and zinc oxide with pure linseed oil and pure turpentine makes a very fine paint for outside work. Your neighbor's house may have been painted with more or less coal oil and chalk.

Q.—What is meant by double and single strength glass?

A.—These terms apply to window glass made by the cylinder process in which the molten glass is blown into large cylinders. These cylinders are afterwards split and flattened out and then cut into commercial size for glazing. The "panes" thus formed are separated into various grades depending upon their thickness and degree of perfection. Two thicknesses are recognized by the terms you name. These are divided into three grades, "AA," "A," and "B." "AA" is the first quality. It is practically free from imperfections such as air bubbles, specks and warping. Its use is restricted to such purposes as picture framing. The other grades have minor imperfections, the "A" type being better than the "B" type, but they are sound and are the grades commonly used for window glass. Considerable money is saved by using the single thickness "B" glass for basement window sash and other unimportant windows. It is satisfactory for the glazing of window sash where the panes are small in inexpensive homes. The double strength "A" glass should be used for larger lights and for more expensive buildings.

HELP FOR THE MAN WHO WANTS TO BUILD

SOME POINTERS ON FOUNDATION FOR YOUR HOME

The majority homes are built on foundation walls which form basements under the house. In certain sections of the country full basements are not used. In this event the house is placed on piers of poured concrete, concrete blocks, brick, and sometimes, if the home is small, it rests upon wooden posts. The average house, however, rests on a wall. This wall, from the grade line to the cellar floor, is usually constructed of concrete, either poured to give what is called a solid monolithic wall, or laid up in concrete blocks.

Why Wall Strength Varies

Concrete is a mixture of cement and sand with a coarse aggregate which may be either broken stone or pebbles, and the strength of the concrete varies in proportion to the amount and kind of each of the materials used. The harder the aggregate, the stronger the concrete.

For ordinary foundation work, a mixture composed of one part of cement to three parts of sand and five parts of broken stone or pebbles will be amply strong. Good work can be obtained by the use of more sand and aggregate, but in any case the mixing should be thorough and the materials should be of the best, especially if concrete is required as a support.

To mix concrete properly each of its ingredients should be measured, and in no case should the contractor be allowed to measure by shovelfulls for the man who shovels the sand and gravel is apt to be stronger than the one who measures the cement. Mixing should be done on a tight platform placed on the ground, or in a concrete mixing machine. Cement and sand should first be mixed dry and the combination should be spread over the aggregate and water sprinkled over this while it is being turned over. It should be turned over twice at least.

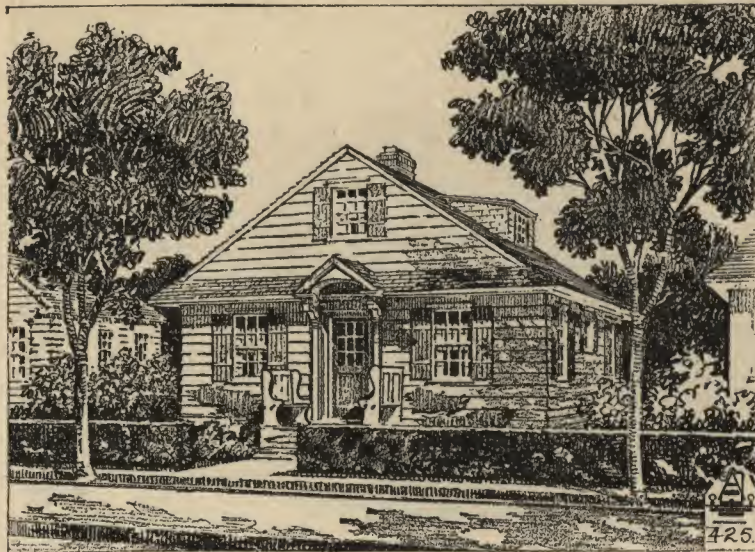
Look Out For Air Spaces

Concrete is used for footings, that is to say, the bed on which stone or brick work is started. It is used for piers and walls, and also floors. When concrete is poured in monolithic form, it should be tamped and pounded as it is formed. This tamping is done to get rid of the air spaces which form, for the denser and less porous the concrete the stronger it is.

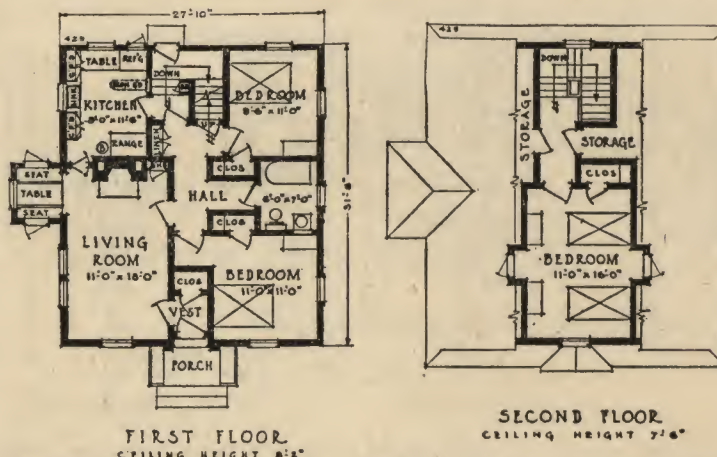
Sometimes concrete is poured in a very liquid condition. This requires no tamping, the water giving the proper result. Recent investigations have shown that unless your concrete forms are tight that a wet mixture is apt to leak through the joints and, therefore, waste. Manufacturers of concrete advocate the use of dry mixture.

When steel bars or wire is placed in the concrete, it is called reinforced concrete. The ease with which concrete may be moulded into any shape makes it available for sills, copings, steps and chimney caps. When so used, the concrete should be poured wet into wooden forms and moulds and left to harden before putting in place.

Lifetime of Satisfying Service



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Seldom, if ever, does a home of this size offer so much at so reasonable a cost as does this bungalow. You may outgrow it eventually and move to a larger home, but you will surely be comfortable here as long as you live.

This home offers more than comfort and convenience. Besides a practical, compact plan you have a distinctive exterior. Sometimes a single detail will lift a home out of the commonplace. It is so in this case. The good proportions, the varied roof lines, the nicely spaced windows are all important considerations. Yet, it is really the handsome Colonial doorway that makes the exterior so distinguished.

Study of the plan will indicate compactness, convenience and no waste space. Bedrooms are grouped on one side and offer privacy; living quarters are on the other side of the house. The dining alcove is a feature. An attractive brick fireplace is topped by a wood mantel, and adjoining it is a built in bookcase with glassed doors.

One chimney serves the flue from fireplace, range and furnace. Every bedroom has a large closet. Windows on both sides provide cross ventilation. The second floor can be finished off if the home builder desires. The basement may be omitted in mild climates.

The house can be accommodated nicely on a 42-foot lot. As the house stands it is designed to be erected of frame structure, wide siding, shingle roof, brick base course, brick chimney, cement front steps. The side seats suggest hospitality.

In localities where restrictions demand fire resisting materials the exterior of the house can be changed to meet such conditions. This home has been erected many times. Its cost varies depending upon the taste of the home builder and the equipment. Ready-to-live in, including heating, lighting, plumbing, this house should be built according to the plans at a price in the neighborhood of \$4,500. The cost will be increased if expensive equipment is used. Likewise, it will be decreased if simple, inexpensive equipment is provided. Stock and standardized materials are used wherever possible, thus assisting to eliminate waste.

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WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—A lecturer on interior decoration referred to rooms as being built up of solids and voids. He said architects plan rooms with these things in mind. Just what did he mean?

A—Undoubtedly the lecturer had in mind what the architect frequently calls constructive elements, namely, doors, walls, windows, floor, fireplace and built in features. A wall and a floor is a solid. Window and door openings are voids. Perhaps a more simple way of expressing this idea is to refer to solids and voids as open and plain spaces. In home furnishing you are forced to recognize these open and plain spaces in relation to the furnishings you select and the arrangement of pictures, furniture, hangings, wall coverings.

For example: Suppose you are selecting a covering for your living room floor. It is considered good taste to regard the floor as a flat space planned to be walked on. Any covering placed upon the floor which has a tendency to destroy the purpose and flatness of the floor does not carry out the purpose of the floor.

A wall surface is a solid and is usually considered to be flat. Patterns placed upon walls which have a tendency to produce irregular or vibrating effects destroy the purpose and flatness of the wall. You will understand we are speaking of general principles in room arrangement. There are exceptions to all rules.

Q—Please advise us whether it would be less expensive to lay a wooden floor in the bathroom, covered with linoleum, and use a bathtub on legs, or a built in tub and tile floor?

A—Contractors advise us that the difference in cost is slight, if any. The reason for this is because the space occupied by a built in tub would not require tile floor. The difference in cost between the tile saved and the wooden floor plus linoleum would be just about offset.

Q—Is it necessary to have a full basement under our house?

A—A full basement is a desirable feature. If you are going to have any basement at all, we advise you to have it extend completely under your house. The extra expense in excavating and running a foundation wall down to the level required will not be excessive and you will have a much more desirable property.

Q—How large a house can I put on a 40 foot lot?

A—This is sometimes restricted by city ordinance. The maximum width of a one story or a story and a half house in many cities would be 33 feet over all. These should be kept at least three feet from the lot line. For a two story house 30 feet would be the maximum. This should be kept at least four feet from the lot line. If your home is to be put on a corner lot, it may be made a few feet wider than if on an inside lot.

HELP FOR THE MAN WHO WANTS TO BUILD

GOOD TASTE VS. POOR TASTE IN HOME BUILDING

Many agencies are collaborating with the department of commerce of the United States government in an effort to reduce the cost of home building by cutting out useless and wasteful details and by methods of simplification and standardization of building.

It has been pointed out by some of these agencies that good architecture means economy in building the small home, as well as the mansion or large building, because it eliminates waste and uses materials to the very best advantage.

Where to Save Money

The two houses shown here illustrate good taste and savings in home building against bad taste and waste. They picture graphically the statement that architecture is economy.

The lower home is typical of many homes. It represents needless expenditure of money in an attempt to secure architectural beauty. According to the Architects' Small House Service Bureau of the United States, which is collaborating with the department of commerce in its national campaign for simpler, better house designs, the house is not only wasteful, but in poor taste.

The upper picture shows the same house redesigned, eliminating brackets, cornices, wide overhanging eaves, and other items which pile up building costs and secure nothing in return from an architectural point of view. This home shows refinement, dignity, simplicity and good proportions. It is a type of home in which you can live with a feeling of pride.

Success or Failure—Which?

Some of the differences between these two homes—differences which may either make the home you build a success or a failure—are well worth study.

No. 1 or the lower house shows posts unnecessarily large to support the roof above. These supports are pudgy, bulbous, toad-like. They represent waste material in an attempt to obtain a flashy effect. Because of this they are not beautiful. Rather they are coarse in appearance, whereas they might have been treated with greater refinement at much less cost.

No. 2 illustrates an unsuccessful attempt to add something to the exterior for the purpose of decoration. The projecting roof over the bay window is unnecessary. The bay windows are not required. They do not add appreciable floor space to the interior of the house. These bay windows and the overhanging roof add expense for framing and finish. The complicated construction increases labor costs. They serve no purpose in decoration. They produce an uneasy, cutup feeling in the exterior of the home.

No. 3 illustrates roof brackets in a vain attempt to support the roof. If the roof really required bracket supports the three shown in size and style would not do the work. The roof, however, is so constructed that it supports itself. The brackets are shams, unnecessary expense.

A Slipping Porch

No. 4 The porch roof appears to be slipping away from the house due to the wide overhang and furthermore on account of no connecting feature

GOOD TASTE AND SAVINGS



POOR TASTE AND WASTE



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to tie the roof with the rest of the house.

No. 5. Here exposed rafter ends serve no purpose. They increase expense for millwork and labor.

No. 6 illustrates a clumsy, crude example of brick work. These heavy, massive piers are uncalled for. A brick wall of this size and proportion would be used only with a masonry building and even then with discretion. One of the practical objections to a solid wall of this type is that when you sit on the porch during summer weather you get little, if any, free air circulation on the feet. This wall would make a better garden fence than a balustrade for a home.

No. 7 shows misplaced horizontal band on the building. These bands are effective when properly used. They serve to tie up and interrelate different exterior features of the home. The band in this case served no useful purpose.

No. 8. The bay windows are unsentential. They are protrusions that add an uneven, bumpy appearance to the exterior.

No. 9. The twin windows are out of scale and poorly placed.

No. 10. The brick balustrade already spoken of is out of scale and is

inappropriate treatment for a wooden structure.

No. 11. The bay window has no apparent foundation. Every structural feature of a building should have apparent support. The windows are small and out of scale.

No. 12. Here is an unjustifiable use of windows in the living portion of the house. Unless more light is required it is better to omit them entirely. They suggest a poorly lighted room.

The interesting part of this analysis of waste in home building is not alone from the point of view of bad or good looks, but it has the added appeal of tremendous saving in itself. The savings alone in this particular house, redesigned as illustrated in the upper house, would be in the neighborhood of \$400.

These examples are presented not in the spirit of criticism, but merely to point out in a specific way how saving in materials, time and labor are possible; how building costs can be lessened by the application of architectural knowledge and skill to what otherwise is considered "hit and miss" design and therefore a waste in dollars. They are the proof in a large way that architecture even in small homes is economy.

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Q—We would like to ask your advice about lowering home building costs. Are there any rules or ways which an inexperienced home builder can employ to assist him in this matter? We are planning on building a small home and feel that we want as many conveniences as possible without sacrificing too much.

A—There are only two ways to erect a building of any kind at less expense. The first is to get a contractor through competition who will agree to build your home at a fair price. The second and perhaps the most important way is to reduce your requirements. There are no other ways to reduce costs. Your home will cost more or less depending upon the quality of materials used in the building and to what extent your home is completed.

When it comes to selecting a contractor, we advise you to do this by taking bids from a number of contractors. This method is an old and well established practise.

Generally speaking the best form of contract is the one known as the general contract in which one single contractor builds the major portion of your home. The contracts for heating, plumbing, and electric wiring are, by this method, given to subcontractors, the remainder of the work being performed by the general contractor. Your general contractor is thus made responsible for turning over the completed building to you in acceptable condition and you have one person only to look to for the completion of the work and the correction of errors.

When there is great uncertainty about the total cost of materials and the contractor is unable to tell exactly what the total cost of your home will be the "cost plus fixed fee" form of contract serves very well. This scheme provides that you pay directly for labor and materials as they go into the building, the bills for which the contractor must regularly present to you.

A third method of building is by the day labor scheme in which you let all the many subcontracts for the work yourself. This is generally not a good scheme for it eliminates the skill of the general contractor, and you must substitute for his direction that of your own. Unless you are very familiar with material and labor and are willing to assume the many difficulties that invariably arise in building, we warn you not to try this method.

We urge you to make a very careful selection of your contractor. Inquire about all the reputable ones in your locality. Have them supply you with proposals to build in competition with each other.

A house of five or six rooms built of frame construction can easily be made to cost from \$1,000 to \$2,500 more than normal by insisting upon the best of everything throughout the house.

Almost every clause of a specification has in it an element which charges your purse with expense. It is impossible in a brief answer of this kind to go into these matters in detail. We recommend very strongly to you that you employ your local architect to assist you.



Home Plan No. 556. Six rooms, bath sunporch, sleeping porch. Stucco exterior, tile roof, excellent plan. See page 5 for plan.



Home Plan No. 667. Full two story home. Six rooms, bath, porch, full basement. Siding exterior, shingle roof. A good home. See page 47 for plans.

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Home Plan No. 331. Unit house. Three rooms, bath, dining alcove, porch, full basement. Stucco exterior. See page 20 for plan.



Home Plan No. 6510. Six rooms, bath, sleeping porch and sun porch. Stucco exterior, tile roof, full basement. See page 8 for plan.



Home Plan No. 669. Colonial two stories. Wood siding, brick base. Six rooms, bath, porch, full basement. See page 45 for plan.



Home Plan No. 406 with stucco exterior, full basement. A type



Home Plan No. 651. New England Colonial. Six rooms, bath and porch. Frame, exterior siding, shingle roof. See page 3 for plan.



Home Plan No. 513. Bungalow. Four rooms, bath, dining alcove, porch. Hollow tile walls. Stucco exterior. Attractive home. See page 35 for plan.



Home Plan No. 507. Colonial brick house. Five rooms, bath, porch, full basement. A practical, straightforward home in good taste. See page 33 for plan.



Home Plan No. 652. bath, sleeping porch. Full basement. Ex



Home Plan No. 422. Colonial Bungalow. Four rooms, bath, dining alcove, porch. Exterior siding, brick base. See page 26 for plan.



Home Plan No. 664. Two stories. Cement block stucco finish. Six rooms, bath, sun porch, full basement. See page 18 for plan.



Home Plan No. 654-A. Dutch Colonial. Six rooms, bath, full basement. A variation of plan appearing on pages 9 and 28. An excellent plan.



Home Plan No. 515 bath, porch, full b Cement base. A wo ranged home.



Home Plan No. 653. Square plan. Six rooms and bath, full basement. Stucco or siding exterior. See page 31 for plans.



Home Plan No. 552. Story and one-half. Six rooms, bath. Stucco exterior, brick base. A popular home where conveniences abound. See page 44 for plans.



Home Plan No. 611. Bungalow. Six rooms, sleeping porch, sun room, exterior stucco, brick base course. Plenty of room and style. Moderate cost.



Home Plan No. 561. one-half. Five rooms ment. Built on exten for plan.

homes at Modest Cost

Planning in this Book

Elders' Clinic

Conducted for Us by

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Home Plan No. 551. Dutch Colonial. Five rooms, bath, full basement. Wide siding exterior, shingle roof. Compact well planned home. See page 14 for plan.



Home Plan No. 510. Two story six room home and bath. Stucco exterior on hollow tile walls. A simple, compact home with every convenience. See page 27 for plans.



Alcove of hollow tile rooms, and bath. Full finish mission flavor.



Home Plan No. 669. New England Colonial type. Six rooms, bath, sun porch, sleeping porch. Full basement. Siding exterior. See page 45 for plan.



Home Plan No. 658. Dutch Colonial. Six rooms, bath, sun porch. Full basement. Siding exterior. Shingle roof. A home of dignity and much refinement.



Home Plan No. 541. Story and one-half home. Six rooms, bath, porch. Stucco exterior, brick base, half timber treatment. See page 11 for plans.



Colonial. Six rooms, exterior, brick base. See page 10



Home Plan No. 654-A. Dutch Colonial. Six rooms, bath, full basement. Siding exterior. Brick base. A model small home. See page 28 for plans.



Home Plan No. 655. Full two-story home. Six rooms, bath, sun porch, full basement. Stucco exterior, brick base. See page 42 for plans and description.



Home Plan No. 426. Colonial Bungalow. Five rooms, bath, dining alcove, full basement. Wide siding exterior, shingle roof. See page 22 for plans.



Alcove. Five rooms, Stucco exterior. Compact, well ar-



Home Plan No. 669. New England Colonial type. Six rooms, bath, full basement. Siding exterior. A big small home at low cost. See page 45 for plan.



Home Plan No. 654. Dutch Colonial home. Six rooms, bath, full basement. Siding exterior, brick base. A model home in many ways. See page 9 for plans.



Home Plan No. 669. Colonial type. Six rooms, bath, porch, full basement. Stucco exterior on metal lath. A dignified, quality home. See page 45 for plans.



Colonial story and sun porch, full basement. See page 4



Home Plan No. 622. Six rooms, bath, full basement, sleeping porch. Exterior sided. Cement base. No waste space in this home.



Home Plan No. 642. Bungalow. Six rooms, bath, porch, full basement. Siding exterior. Cement block base. A straightforward bungalow that offers many conveniences at low cost.



Home Plan No. 503. Bungalow. Five rooms, bath, full basement. Stucco on hollow tile. Tile roof. Brick trim. A home of character and good lines.

HELP FOR THE MAN WHO WANTS TO BUILD

POINTERS THAT MAY AID YOU IN WIRING OF HOME

Adequate wiring is absolutely essential for efficient, convenient and satisfactory electric service in the home. That service depends just as much on sufficient wiring, switches and convenience outlets, properly placed, as the service rendered by the water supply system depends on the amount and location of the piping and the number and location of faucets and shutoffs.

This is so obvious that it would be inexcusable to emphasize it were it not for the fact that there has been a tendency in the past and still is, to some extent, on the part of home builders to overlook it. Many a house is equipped with a 100 per cent plumbing and heating system including every practicable device for convenience and efficiency whose wiring system is far from being adequate.

How to Wire Home Completely

What is an adequately wired house, or, to use a term that has become current in the electrical and house building field, a completely wired house?

The question is easily answered. A completely wired house is one equipped with sufficient lighting fixtures and sufficient convenience outlets, to attach all the lamps and all the household electrical devices that the builder or a subsequent owner of the house may wish to use, and wherever he wishes to use them.

What the number and location should be depends on the individual house, on the size, shape and location of the rooms. One general rule may, however, be laid down: There should be at least one convenience outlet in each room.

A good way for the person who is planning a house to decide, or help decide, the matter is to visualize the furniture as it will be arranged in each room and to arrange the location of lighting fixtures, convenience outlets and switches accordingly. The place for the piano in the music room or living room having been chosen, the convenience outlet should be located with reference to the use of a piano lamp. The same is true of the library table, and, in the dining room, of the buffet and the dining table. Thought should also be given to possible rearrangements of furniture.

What House Wiring Committee Says

The wiring committee of the National Electric Light association recommends the following:

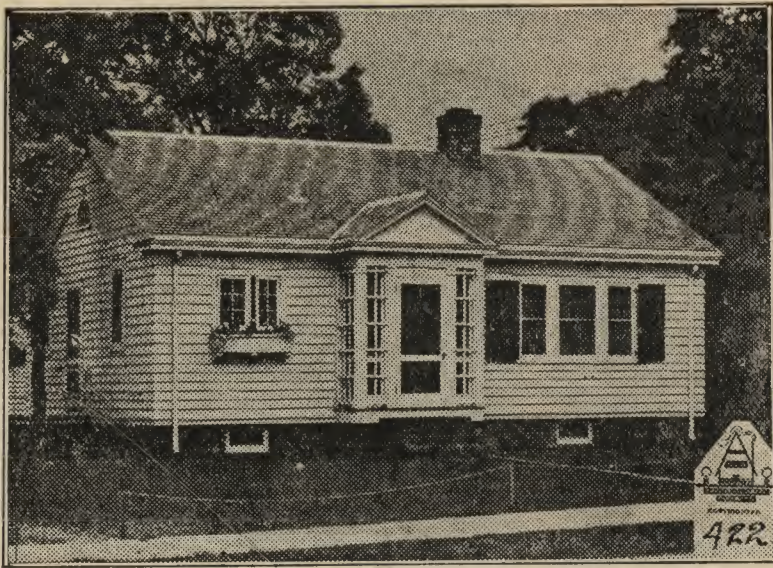
Dining Room—One floor outlet near center of room for table cooking appliances. Two outlets about five feet apart in wall which will be used for buffet to accommodate the use of candlesticks. One outlet near entrance to pantry or kitchen equipped with duplex receptacle for cooking appliances on serving table or tea wagon and to make it more convenient to connect portable vacuum cleaner.

Breakfast Room—Outlet for cooking appliances, conveniently located.

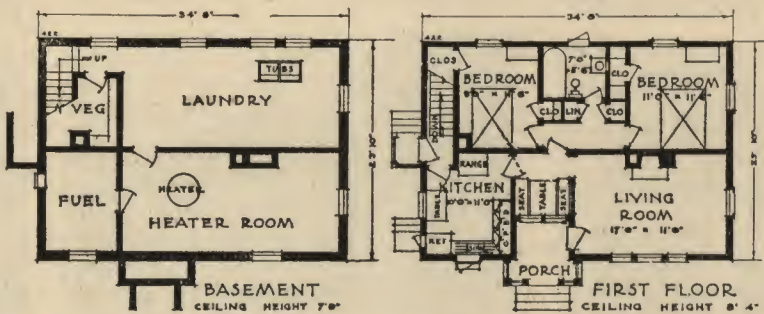
Living Room—Two duplex outlets in shelf or mantel—one near each end for mantel lamps and fan. Three to five convenience outlets to accommodate table and floor lamps, electric piano, talking machine, etc. Sufficient number of these outlets should be installed to accommodate any likely rearrangement of furniture.

Bedroom—Three or more outlets located to permit rearrangement of furniture and make it convenient to connect warming pad, blanket, curling iron, vibrator, violet ray, portable lamps or bracket lamps on bed, dresser or dressing table. For maximum convenience in using small appliances or vacuum cleaner in bedroom, one or more of these outlets should be located 36 inches above the floor.

EVERY COMFORT GIVING FEATURE



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THIS delightful Colonial bungalow is fully worth the appreciation critical home builders feel for it. Convenient, economical to construct, it provides every comfort giving feature. Both inside and out the design has been kept simple and inexpensive without losing any of the essentials of a modern home or without sacrificing the exterior charm.

Type of House—Bungalow. **Style**—Colonial. **Suitability**—Adaptable to needs of small families and to all regional and climatic conditions. **Size**—Four primary rooms, bath, dining alcove, and porch—attic space available. **Dimensions**—34' 8" wide, 23' 10" deep. First floor ceiling height 8' 4".

Exterior Walls—Frame construction; insulated; wide siding; brick base course; shingle roof either wood or composition. Exterior finish if preferred can be stucco on metal lath, stucco on cement block, or the house can be erected of brick.

Cost of House—Cubical contents approximately 16,500. Erected complete according to the plans including heating, lighting, plumbing, and ready to live in, this house can be built at a cost ranging between \$4,200 and \$4,500. Inexpensive equipment will reduce the cost. Expensive equipment will increase the cost.

Features of the House—The conveniences are many; living quarters designed to occupy one side of the house, sleeping quarters the other; entrance to bedroom section leads off private hall—an arrangement superior to what is found so often in many small one-story houses; latticed Colonial entrance porch so well protected that no vestibule is necessary; a brick fireplace with wood trim mantel dominates the well proportioned living room. A dining alcove with built-in seats provides full advantages of a dining room. It does not occupy valuable floor space. The bedrooms are light and airy with plenty of closet space. A door bed in one bedroom adjoining the living room would permit the bedroom to be used for utility purposes, perhaps a combination sun room or an extension of the living room quarters. A full basement is provided, linen closet, and extra closet in the hall.

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venience in using small appliances or vacuum cleaner in bedroom, one or more of these outlets should be located 36 inches above the floor.

Bathroom—One outlet equipped with duplex receptacle, so that heater and hair dryer or any two appliances can be used at the same time.

Other rooms, halls, porches, etc., should be wired having in mind every possible use that might be made of that part of the house and outlets provided for both present and future needs.

In all rooms provided with wall

brackets for lighting the outlets should be so located that a rearrangement of furniture is permissible, and so that the brackets may be moved with the furniture and attached to a wall outlet conveniently located.

The completely wired house not only affords the builder far more convenience, comfort and satisfaction than the partially wired one, but it finds a readier sale at a better price; and this will be constantly truer as time goes on, for the public is demanding more and more in the matter of wiring.

WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—When we graded the lot for our new home we put in a three foot fill in front of the house. The front sidewalk has to pass over this. Our contract calls for the house complete with sidewalks, but the contractor tells us now that we should not put in the sidewalk until later. Of course we do not like the appearance of the temporary sidewalk, and we do not want to wait. What is your opinion about this?

A—Unless the fill you speak of has had a chance to settle to the fullest extent, it would not be proper to put the sidewalk over it, for future settlements are sure to come, and when they do the walk will be cracked. We recommend that you follow your contractor's advice in this. Wait several months before you put in the permanent walk. Use boards or stepping stones made of two foot square concrete slabs meanwhile.

Q—I wish to install a shower bath in my bathroom. The wife objects because she says I will splash water all over the bathroom and spoil the ceiling below. Is there any way to put in a shower bath so that the water can be kept off the floor?

A—It is almost impossible to avoid some splashing of the water on the floor. Of course you must put up curtains over the doorway or else have the floor of the shower below the general level of the bathroom. This involves waterproofing under the tile work. We advise you to install a one-piece receptor at the base of the shower so as to reduce the possibility of water getting through the floor and damaging the construction below.

Q—Please tell us which is the more expensive, a flush bath tub with a tile floor or a leg tub with a tile floor?

A—The expense is about even on these two items. The tile work and labor which you save by putting in the flush tub will just about balance the extra expense of the flush tub over the leg tub. The accommodation you get from the flush tub is so superior that we do not hesitate to recommend the installation of this particular device. You improve the resale value of your home by using high class fixtures of this kind.

Q—Please tell us when is the best time of the year to build. Some people say that it is less expensive to build in the winter than in the summer. Others think the other way is better. What is your opinion?

A—If you build in the summer time during the period when contractors and mechanics are busily engaged you must expect to pay the current prices for materials and labor and these are nearly always at a high level at that time. The price of these commodities is determined by the market conditions. When there is a large demand as in the normal summer building period, prices go up. We have found one of the cheapest ways to build is to put in the foundations in the fall and then to start the framing and subsequent operations as early in the spring as possible. This will permit you to engage various subcontractors and workmen and to buy materials before the demand is great with resulting decreases in costs.

HELP FOR THE MAN WHO WANTS TO BUILD

MAKING A HOME "GOOD" REQUIRES MUCH ATTENTION

Among many definitions of architecture there is one which, translated into terms of the laymen, is especially apt. It is as follows: "Architecture is putting into a building certain qualities—namely, logic, strength and beauty."

What should these terms mean to the small as well as large homebuilder? You have probably seen or lived in houses that you call convenient. Then again, you have, without doubt, known or lived in a house that you called inconvenient or an abomination. In the latter you may have to traverse three rooms and six doorways to get from the kitchen table to the front door when the postman brought the morning's mail. Or all the goings and comings between basement, kitchen and bedroom had to be carried on in full view of a guest or caller in the living room. Or else there was a bedroom with no wall space for a bed to rest its head, a kitchen without a place for a broom, or a noble reception hall with no place for a coat or hat to hang.

When the Ceiling Leaks

In this same kind of inconvenient house perhaps you have found all your best efforts with the furnace defeated because of a front door that opened up the living room to all the vagrant cold winds blowing down street. You may have found that a roof pitch adapted to California was entirely inappropriate to northern conditions. It was so flat that all the melting snow backed up under the shingles and leaked down through the ceiling. Your whole family may have grown cross and fretful over a door that opened into everybody's way or over living rooms dull and cheerless because poorly lighted or faced away from the sun and air instead of toward them.

All these things you call inconvenient or impractical come under the head of "logic." Probably 60 per cent of the architect's effort when he makes the design of your home goes into getting a section and plan that will eliminate all these things we have been asking about, and include on the other hand all those hundred and one things which make a house really livable.

Small Homes a Big Problem

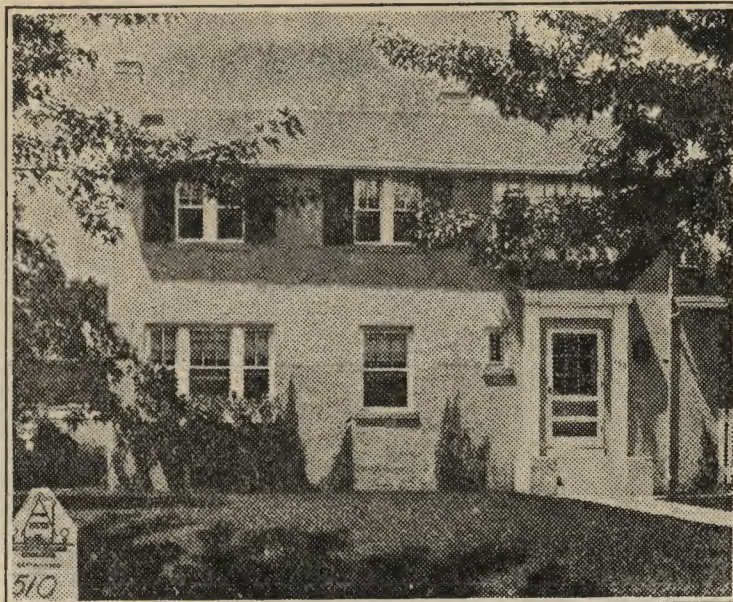
To make a five or six room house absolutely "logical" requires about as much concentrated gray matter as to design a state capital.

To get a house dimensioned, shaped and planned so that every room is as big as it needs to be, but no bigger; so that stairs not only begin in the right place on the first floor, but end in the right place on the second; so that you don't bump your head going up these stairs; so that the front door doesn't admit the visitor directly to the family group around the hearth or dining table; to arrive at all these things without kinks and jogs and wriggles in partitions and roofs that complicate construction and increase costs—all that is what an architect means by "logic" in design.

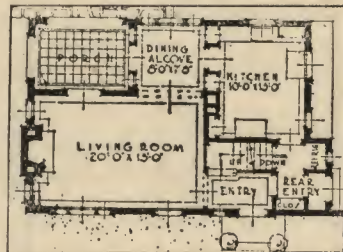
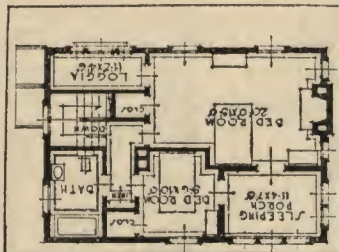
To summarize — "logic" means adaptability to conditions of site and family life, convenience of arrangement, simplicity and economy of construction.

This is the first of a series of articles to appear in the column on what makes a house good.

A STREET TYPE HOME



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FOR a home of dignity and reserve, this one will rank high with any house of similar size and cost. It is planned for a 50 foot lot and is suitable for any part of the country. The house might be called a street type, with its broad front and rather severe but attractive lines.

Type of House—Full two story. **Style**—American. **Suitability**—Adaptable to most region and climatic conditions. **Size**—Five rooms, bath, dining alcove, sleeping porch and loggia. **Dimensions**—Outside, 35 feet wide by 22 feet deep.

Exterior Treatment—Hollow tile walls with stucco finish in cream color. Roof shingled of variegated colors, cream and brown. Blinds or shutters to harmonize with roof.

Cost of House—Cubic contents approximately 18,500 feet. Erected complete, this house, including heating, lighting, plumbing, ready to live in, should cost between \$6,000 and \$7,000, depending upon the equipment. Simple equipment will lessen the cost; expensive equipment will increase the cost.

Features of the House—Attractive main entrance; small entrance hall nestling snugly on one side next to living room gives the living room an air of openness. The living room is exposed on three sides, is dominated by an attractive fireplace, and the garden to the rear offers a beautiful view through the full length casement doors leading to the garden porch. This porch is contained in the main body of the house. The well placed dining alcove possesses three interesting features, large opening into the living room, a triple window extending across the full width facing the garden, and full casement doors to the garden porch. It also contains two combination china cabinets accessible to the kitchen, to be used as pass closets in serving meals.

The kitchen is unusually large for a house of these dimensions. It contains complete equipment and is ventilated as well as lighted on two sides. The large bedroom on the second floor contains a fireplace. The bathroom is in close communication with all bedrooms. Basement is fully excavated, contains heating room, laundry, cellar pantry, fuel room and large store room.

This house, planned along simple lines and compact, provides very attractive equipment and at the same time should be found economical to construct.

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Q—We are having trouble with the brick stoop of our new home. The end bricks do not seem to hold. Do you think that this is the fault of the bricklayer? It seems to me that the mortar is too dry.

A—It is very difficult to set bricks so that they will remain permanently in position in the places you speak of. When bricks are used in paving especial care should be taken at the corners so as to have the bricks at this particular place well anchored. This involves using full size bricks. One solution of this is to make the corner bricks run back into the masonry diagonally. Another is to use a special block. If the bricks are laid flat at the corners they will do better than if set on edge. Be sure to have high grade mortar used in places of this kind made of Portland cement and sand in equal proportions and in hot weather have the bricks well wet before they are laid. Point the joints smooth so that they will weather well.

Q—Why is it that houses are not being built with front porches any more?

A—Probably one of the most important reasons for this is that porches entail expense which small home builders are not able to assume at the present prices of building. Another reason is that many people prefer to have the porch at the rear of the house where there is greater privacy. In this position the porch serves as an outside dining room in the summer. It is difficult to accommodate the front porch to the design of a house so as to get a fine appearance.

Q—What is the best kind of flooring for a kitchen?

A—We believe that most people prefer linoleum to any kind of wood as used for the surface of kitchen floors. A wood floor is not as sanitary as linoleum and requires considerable more care to keep it in condition. If linoleum is used the base underneath can be a cheap grade of soft wood flooring. It should be set down so that the linoleum will finish flush with the adjoining rooms.

Q—Can we save any money by building our home on the day labor basis? We never have done any building, but we think we could hire the men as well as the general contractor can and save his profit.

A—This is an extremely hazardous way to build. We are sure that you can get an honest contractor who is a good builder and who will charge a very reasonable fee for his superintendence of your work. If you try to dispose of his direction and knowledge you must substitute for it your own, and if you have not had any experience upon which to draw in regard to building you probably will find in the end that you will have incurred as much expense as you would if you had employed a general contractor. Without having had experience in building you are bound to make mistakes which will be costly. You will find that there is a great deal of worry and work in connection with the building operations which will take your time and energy. We do not recommend this way of building a home as a usual procedure.

HELP FOR THE MAN WHO WANTS TO BUILD

PRACTICAL IDEAS IN HOME BUILDING DEMONSTRATED

By actually building a demonstration house, the Architects Small House Service bureau of the United States through one of its regional bureaus, the northwest division has verified the practicability of its aims and the soundness of its advice to homebuilders. It has shown that small homes may be made architecturally beautiful at no greater expense.

This demonstration home has just been completed in Minneapolis with the co-operation of The Minneapolis Journal, one of the newspapers in which this home building service of the Home Builders Clinic is published each week.

The Minneapolis demonstration, together with the experiences of hundreds of homebuilders throughout the country who have built from bureau plans, prove these important points which constitute the chief purposes of the bureau:

Purpose of the House

Architecture is economy.

A well designed home is not more expensive than an architectural monstrosity, in fact it is less expensive.

Good architecture is necessary to obtain the maximum of comfortable and attractive shelter for the dollar expended.

A home builder, by using complete plans, drawings and specifications such as are furnished by the Bureau, may build with assurance that the final cost will not exceed the amount he purposes to spend.

A beautiful interior, which lends itself readily to interesting, homelike and comfortable decoration and furnishing, may be created at minimum cost by the use of simple finish and materials without detracting from durability or appearance.

It is not necessary for a family to wait until the cost of a home has been saved—it is good practice to build on borrowed money, as part of the rent can be saved.

Just how these things have been proved in detail in The Minneapolis Sunday Journal from week to week as the building progressed.

Start With \$2,000

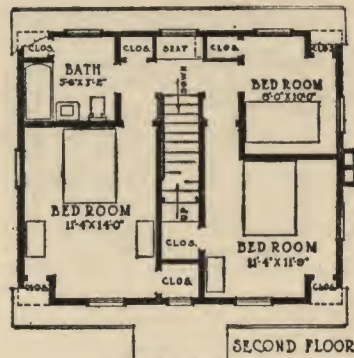
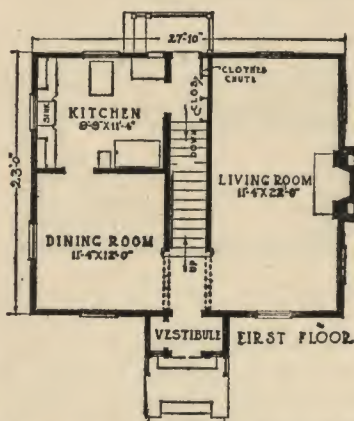
John W. Journal, supposedly the owner for whose family of four the home was to be built, had \$2,000 in the bank and owned a lot valued at \$600. He decided he would like to build Plan No. 654 as shown in the book of the Architects Small House Service bureau, Northwestern division. He preferred this house because it is of an interesting Dutch-Colonial type, with its gambrel roof affording the largest amount of room for the money invested. He did not want to build the cheapest shelter he could put up. But he did want to build a comfortable, beautiful and durable home at moderate outlay, one which would require the smallest expenditure for upkeep.

It was estimated that under the conditions which existed in Minneapolis at the time the home could be built for \$5,400. The owner found he readily could borrow 80 per cent of the value of the completed house and lot, or \$4,800, by giving title to the lending company and accepting a contract for deed on which he would make monthly payments on the principal and interest until his indebtedness had been reduced to the amount

DEMONSTRATION HOME \$5,600



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which could be borrowed on first mortgage. Then he would refinance the project and recover title.

Inasmuch as he had savings of \$2,000. John W. Journal decided to borrow only \$4,000, purchasing the property back from the financing company on payments of \$30 per month plus interest. Under this arrangement his first monthly payment would be \$55. The payments would become smaller each month as the principal of his indebtedness was reduced.

This arrangement, the owner decided, was more economical than paying rent, as the interest, taxes and upkeep would cost him less than he had been paying in rent. Thus by buying a home he actually would be saving part of his rent. The rest of the monthly payment on principal he ought to be saving anyway, so the project gave him an incentive to regular saving and an investment without equal in dividends—a home of his own.

Home Complete in 11 Weeks

John bought the plans and other documents from the Bureau, had the lot surveyed, took out a building permit and let the contracts on a competitive basis.

From this stage on, including the letting of contracts, every step was taken just as the average home builder would proceed. All contracts for work and materials were let at normal prices which any homebuilder

could obtain in Minneapolis at the time. The complete schedule of final costs will be found below.

Attractive Inside and Out

Eleven weeks after the foundation was begun, the home was practically completed. A house had been built which was a model in construction and arrangement. The exterior of wide siding painted white, with green-stained gambrel roof and green blinds, gave the effect of a much larger house. The interesting brick course at the foundation and the beautiful chimney emphasized stability. The fine proportions and simple lines of the house seemed to lift it far above the class indicated by its moderate cost.

Inside, the correct use of inexpensive finish and materials created a harmonious atmosphere of substantial comfort. Pine woodwork painted in an ivory tint contrasted agreeably with mahogany finished birch doors. Heat registers were placed so as to give good wall spaces for furniture. The wood and brick fireplace of the long living room gave promise of the restfulness of a real home. The bed and waxed birch floors, the ivory users and mahogany treads of the colonial stairway reflected the good taste that created an interior of charm at the most moderate cost.

The house had every convenience to be found in the average American home; efficient laundry facilities, a

model kitchen in white enamel with built-in cabinets, well ventilated bedrooms, an abundance of closet and storage space. Thoroughly insulated walls assured winter comfort and the economical operation of the adequate heating plant.

Thousands Inspect Home

Throughout the progress of building, more than a thousand persons inspected the home every week. Each Sunday afternoon the rooms were crowded with visitors, among whom were hundreds of builders who were using this house as a standard in judging the work on their own homes. Long after the house was completed this public interest in The Journal House continued. Throughout the state of Minnesota the plan of this house was copied until nearly every town had its "John W. Journal" home.

In Minneapolis the object lesson afforded by this demonstration is generally credited with a large influence in a revival of home building which already has broken the records of any previous year, assuring Minneapolis an addition of between 4,000 and 5,000 new homes before winter. The demonstration did much to take the mystery out of home building, and to restore public confidence in building costs.

By actual experience in this demonstration and in the building of hundreds of homes from Bureau plans by individual, in many cities and towns, the architects of the Bureau have checked the information which is offered to the readers of this newspaper who are interested in home building.

Items in Expense

Following is a complete statement of the cost of building the Minneapolis demonstration house:

Preliminary Expense—	
Small House Service Bureau plans	\$30.00
Lot survey	8.00
Building permit	5.50
Water meter	13.00
Total	\$56.50
General Contract—	
Excavating, average cost (not actual) ..	60.00
Waterproofing	18.70
Lumber	997.47
Millwork	830.50
Masonry	643.15
Carpentry	725.00
Painting	315.20
Heavy hardware ...	75.00
Plastering	275.75
Tinwork	35.00
Margin	331.93
Total	4,307.70
Subcontracts—	
Heating	\$325.40
Plumbing	468.00
Wiring	65.00
Finish hardware ...	92.37
Fixtures	83.00
Sidewalks	60.00
Grading, average cost (not actual)	60.00
Total	1,153.77
Total all contracts ..	\$5,517.97
Cost of lot	600.00
Total cost	\$6,117.97

The final cost includes extras which, while they undoubtedly added to the beauty of the home, were by no means necessary. Costs of excavation and grading were double the average experience because excavating was done before the frost was out of the ground and because the lot selected was very high in the rear and had to be leveled. With allowance for these abnormal expenses and extras, the house was built for less than the estimate.

HELP FOR THE MAN WHO WANTS TO BUILD

SOME HINTS ON PLANTING YOUR HOME GROUNDS

Your home, if properly planted, will bring you added profit in happiness, beauty and dollars. The cost for planting your home need not be large. The result will more than offset the money you spend through increased land value, provided you plan and plant wisely.

You can do much of the work yourself if the home is small. It should give you a wholesome amount of satisfaction and pride to care for plants, shrubs, trees, flowers and lawn. Home gardening is one of the many joys due you from building and owning your own home.

Why Home Planting Fails

To plant successfully your home, study carefully the size and location of your lot, the type and character of your house, the local available hardy plants, trees and shrubs, the character of the subsoil and exposure. Next decide upon a well thought out plan. Follow the plan to completion even though a year or two pass before your gardening efforts begin to show permanent, beautiful, satisfactory results.

Home gardening failures usually are due to lack of understanding a few simple elementary principles which underlie the art of landscape architecture. This does not mean that home gardening is a simple art. To the contrary. It is frequently a highly complex problem requiring the skill and service of a professional landscape architect. To be sure of satisfactory home gardening results, it is best to consult and depend upon the advice of experts in such matters. It will save you money in the end.

The surroundings of California bungalow may be entirely unsuited for northern climatic and topographical conditions. The semitropical plants and foliage of the south cannot withstand the severe northern winters. The formal treatment of an Italian villa is not suited to the informal and rugged gardening demanded of a rocky mountain chalet.

Small Home Difficult to Plant

Planting a small home is in some respects more difficult than a larger estate. This is due to limitations which surround a small home. Perhaps your home is located on a 40 foot city lot. Your yard space, front and rear, no doubt is limited. Your surroundings may be more or less fixed by uncontrollable conditions. Telephone poles, hydrants, unsightly things which adjoin your property can be made less obtrusive.

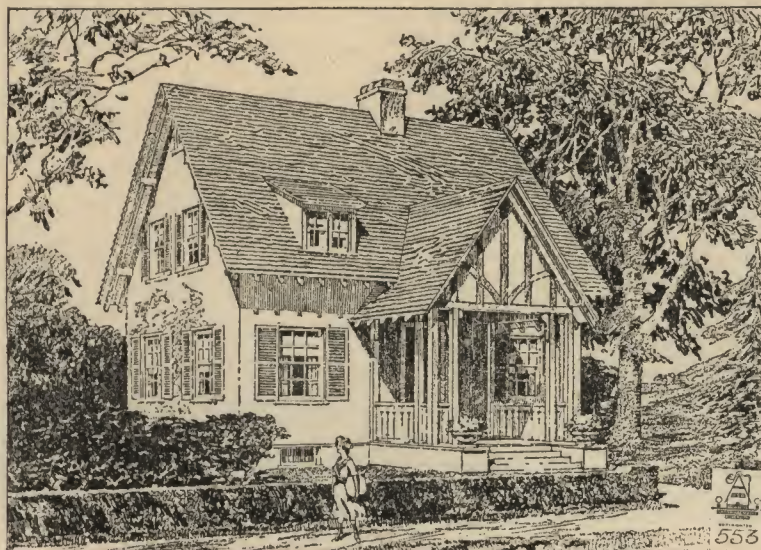
If your home is located on a broad expanse of land, or in the country where trees, shrubbery and long, open vistas abound, your problem may be larger but not so difficult to handle.

A home, strictly speaking, is a combination of house with surrounding grounds. Each is interdependent upon the other and should combine to produce an orderly, beautiful, well balanced picture.

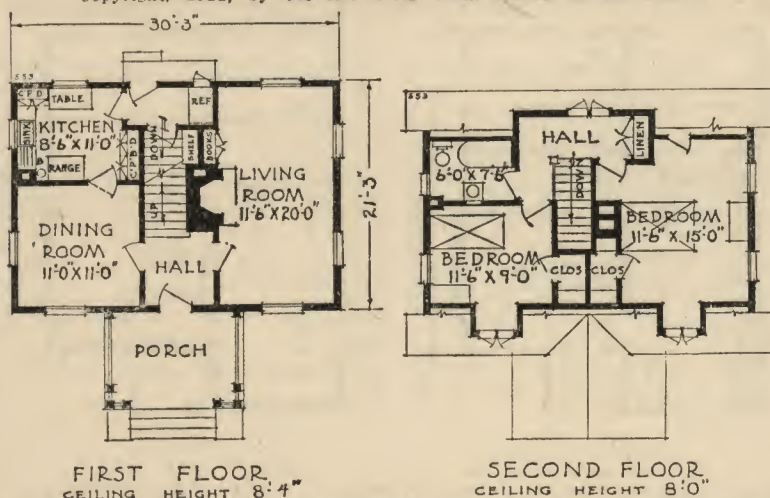
Looking from the inside of your home each window should frame a nature picture, nicely composed and complete within itself. Don't think because your yard is small you are unable to secure attractive results. Many of the most beautiful homes are small ones carefully planted.

In a future article to appear in this column some simple rules will be set forth that may assist you in practical and artistic home gardening.

Many Desirable Features



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Here is a popular home suited for almost any small or medium size family, any locality, any location. There are features about this home which set it apart from other five room houses. The proportions are so pleasing that they produce notes of extreme distinction.

Study the balance and spacing of the windows and note how the peak of the porch gable breaks into the long sweep of the porch roof. Dormer windows give life and animation to the exterior. The generous porch, which measures 8½ feet by 11 feet, is so designed that it does not shut off the sun from dining and living room windows.

There is not an inch of waste space in this home. It can be accommodated comfortably on a 40 foot lot. The house is designed to be built of frame construction with exterior finish in stucco on metal lath and shingle roof. Outside dimensions are 30 ft. 3 inches wide by 21 ft. 3 inches deep. There is a full basement.

One-half of the lower floor is given over to the living room which is dominated by a well placed brick fireplace with adjoining bookcase the same height as mantel shelf. Four windows provide the living room with plenty of sunshine and fresh air and an outlook on three sides.

The entrance vestibule offers liberal hanging space for coats and hats at one side of the door. The kitchen is small, but planned to lighten house work and lessen labor. A window over the sink, another over the table, supply plenty of sunshine, light and cross ventilation.

Two bedrooms with spacious closets, bath, an attractive open hall, a linen closet complete the equipment on the second floor. Both bedrooms have cross ventilation.

Here is a home that should be built for approximately \$6,000 complete, including heating, lighting, plumbing, ready to live in and start housekeeping. Savings can be made to lower this estimate.

In localities where ordinances require brick or masonry walls the exterior of the house can be changed to meet such conditions. Stock and standardized materials are used wherever possible, thus assisting to eliminate waste and lessen cost.

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Q—Do storm sash really save heating bills?

A—Yes, in northern climates storm sash are a necessity.

Q—Is there any basis for a home builder to determine how much he is justified in spending for a home depending upon his income? Are there any statistics which would enlighten me on this matter?

A—Budget experts today say that the average householder allows 42 per cent of his income for food, 16 6-10 per cent for clothing, 13 5-10 per cent for miscellaneous necessities and luxuries, including recreation, education and medical assistance, 14 3-10 per cent for housing, 4 3-10 per cent for furniture and furnishings, 4 3-10 per cent for light and fuel, and 5 per cent for investment. To be on the safe side the architect in planning a home will set down at least a fifth of the family income for housing, furniture and furnishings. For example: With a building cost ranging around 30 cents a cubic foot it is easy to see that a \$2,000 income should be divided so as to allow the home builder one-fifth of the \$2,000 or \$400 a year as an annual appropriation for rent, thus providing a safe margin for investing \$4,000 in a lot and house, of which \$800 will go for the purpose of the lot, leaving \$3,200 for the construction of a small bungalow of three or four rooms.

On an income of \$2,500, it would be safe to invest \$5,000 to be divided into \$1,000 for a lot and \$4,000 for the building of four rooms and bath. A yearly income of \$3,000 represents a rent investment of \$600. On this basis \$6,000 may be safely invested in a home of four or five rooms, \$1,200 will represent the lot, \$4,800 the actual construction of the building at 30 cents a cubic foot. During the war the United States Housing corporation went into the subject of housing costs very thoroughly and published some very interesting statements in regard to justified housing expense on the basis of income. We will be glad to supply you more data if you desire.

Q—What are the features that help sell the small home?

A—In a general way we will answer your question as follows: First, location of the property. Second, type and size of home. Third, compactness in plan, combining modern home conveniences, labor saving devices, adequate light and ventilation. The following features are asked for today by most home buyers: A living room with fireplace, a dining room or a dining alcove, a small compact kitchen planned to save steps and lighten housework, a sun porch, at least two bedrooms, bath, and possibly sleeping porch on the second floor.

The equipment of the house should include a well lighted section of the basement for laundry purposes. There should be plenty of electric outlets provided for electrical machinery, vacuum cleaners, electric irons, etc

HELP FOR THE MAN WHO WANTS TO BUILD

WHAT MONTH TO SELECT FOR YOUR HOME PAINTING

Springtime means cleanup and, naturally, paintup time, and it is probable that most painting is done in the early months of the year. However, the dry period during the fall months is said to be a good time for painting, as the house is given protection for the trying period of winter.

The time to paint, however, depends upon your weather and lumber conditions. In some localities painting is done between the wet spring period and the coming of "fly time" and before the intensive summer heat arrives. In other localities the fall months see a tremendous amount of painting.

Plug Nailholes and Blemishes

Be sure that the priming coat is thoroughly dry before you apply the color. See that all nailholes and other blemishes are plugged with a good grade of putty. Then begin your application of color. Let this dry thoroughly before the second coat is put on. Wait for the second coat to set before applying your third and possibly last coat.

There is no doubt that stains for woodwork, either shingles or siding, add much to the colorful and attractive appearance of a home. They are popular and practical.

Stained shingled roofs are usually treated with some form of creosote or linseed oil mixed with color. You can purchase special makes of shingle paint. They contain asbestos and other mineral pigments. Shingles stained and properly laid give decorative appearance. They resist decay if of good quality of wood and successfully treated with the special paints prepared for such purposes.

Suppose your home is built of cement or stucco. Exposed to the weather, both stucco and cement have a tendency to grow dirty and streaked, but can be refreshed by special stucco stains.

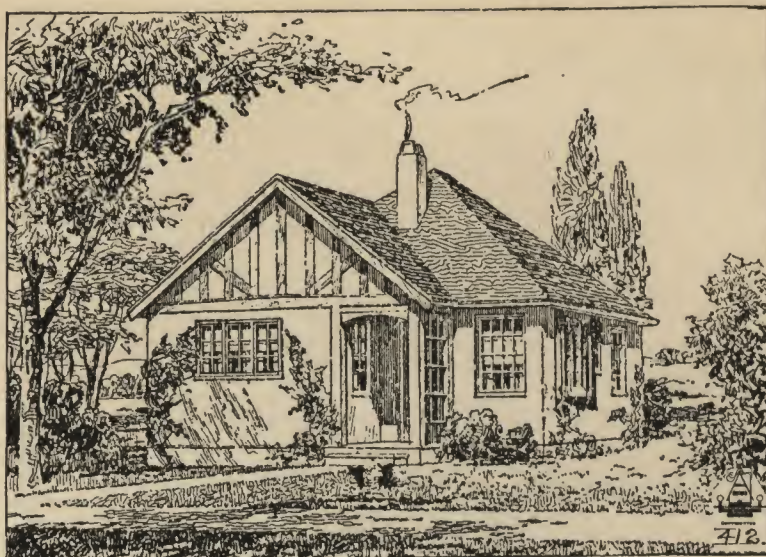
Selecting Interior Paint

Look out for the metal work on the exterior of your home. Leaders, gutters, flashings, fences, etc., due to exposure to rain and moisture, require paint. Galvanized iron surfaces, which are flat and smooth, require something to roughen the surface in order that the paint will adhere, lay flat and not peel. When painted with a high grade metallic paint you should have no trouble with color loosening from iron surfaces.

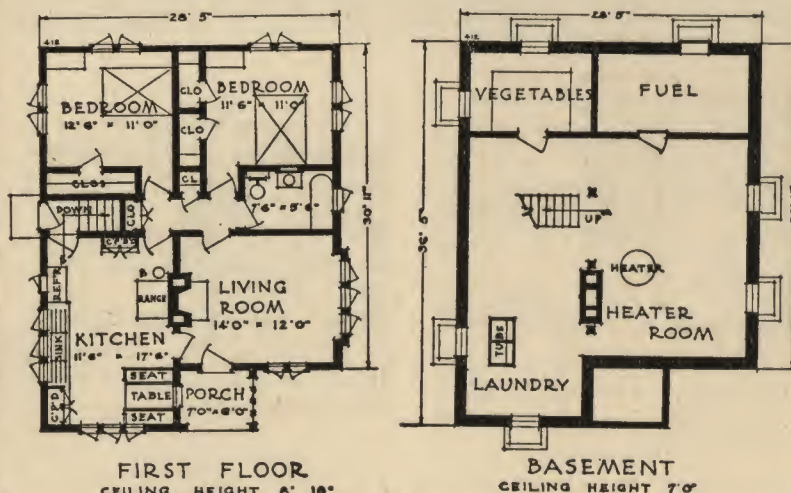
When it comes to selecting the paints and finish for your interior, there are two things to keep in mind. First, the purpose of wood finish is to produce color treatment in your home, to preserve and protect the woodwork. Second, success in painting your exterior for permanent and satisfactory results will depend in a large measure upon the workmanship in preparing the wood surfaces and the application of the paint.

No part of the average home is more frequently abused than the treatment of wood finish, trim and wall surfaces. Wood finish is sometimes so loaded with stain, paint and varnish that the natural beauty of the wood is lost. Wood finish should always be quiet and never assertive. Your walls may be painted or calcimined. Your woodwork stained, filled, varnished, waxed or enameled.

Smart Appearing Bungalow



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FIRST FLOOR
CEILING HEIGHT 8' 10"

BASEMENT
CEILING HEIGHT 7' 0"

THIS bungalow, planned after the English cottage type, is of frame construction, brick base course, stucco chimney, shingle roof, rough-cast exterior stucco walls on metal lath. The trellised entrance porch has brick steps and floor laid in herringbone pattern. To maintain the English spirit, the windows have casement sash.

Here is a home suitable for any section of the country and will build well on a 40 foot lot. The plan combines reasonable building cost, well tailored appearance and the latest ideas in modern home planning. The house offers a full basement, living room, two corner bedrooms, bath, kitchen and dining alcove on the first floor. There is ample room on the second floor for an attic bedroom.

As an illustration of the attention paid to comfort and convenience in this plan, consider the big living room. Note how the windows are massed in a corner like a sun room. This amounts almost to the inclusion of the sun porch under the roof. The room will receive every passing breeze and also sunlight from two sides. And note how the fireplace has been located so that a single chimney serves both fireplace and range. This means economy in construction. The fireplace is of brick, with wide wood mantel.

A somewhat larger kitchen is provided than in the average house, because it includes a built in seat and extension table, thus forming a breakfast alcove. There is plenty of cabinet space for dishes. The icebox is in the kitchen, but has an outside icing door.

Two bedrooms at the rear of the house, each with four windows, are quiet and private.

There is much value in this house—value in service, comfort and satisfaction—for the money it will cost. Erected complete, according to the plans, including heating, lighting, plumbing, ready to live in, this home should be built at a cost ranging between \$4,700 and \$5,100, depending upon location and equipment. Expensive equipment will increase the cost, inexpensive equipment will decrease the cost. Insofar as possible, stock materials are used, thus lessening the cost for extras. If the home builder desires, certain eliminations and substitutions can be made which will in no way effect the substantial appearance and service of the house and at the same time the total cost can be lessened somewhat.

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Q—Please give your advice about the different kinds of fly screen.

A—Wire cloth is made up from wires of various kinds of materials and size with varying distances between the wires. In principle the more durable material should be used and the mesh should be fine enough to give protection from flies, mosquitoes, and other insects. It has been shown that mosquitoes will pass through No. 12 screen—that is, screen having 12 wires to the inch. It is customary to use this type of screen, but the 14 or 16 mesh cloth would be much better. In general wire cloth is made from steel wire painted, in which case it is called black wire, or galvanized, in which case it is called white or pearl wire, or it may be made of an alloy such as bronze. The most expensive and most durable is bronze, but bronze wire should be protected by oxidation so that it will not show finger prints and rain streaks. We recommend that you have your screens made the full window size opening so that you can open the windows from the top as well as from the bottom for proper ventilation.

Q—Our fireplace smokes. Please tell us what we can do to prevent this.

A—It is probable that at this time not much can be done to help you. Perhaps you should have the flue cleaned out. See also that the throat is clear and that no loose bricks have been left here. It may be that you can improve the draft by raising the height of the flue above the roof. This very often proves beneficial. The depth of your fireplace should be at least two-thirds as great as the height of the fireplace opening. If you find this relation does not exist you can improve the construction of your fireplace by raising the hearth one or two courses of brick. This has the double advantage of having a fine appearance as well as improving the draft.

Q—When I let the contractor for my house, what parts of the work shall I handle myself as separate contracts?

A—We advise you to let separate contracts for heating, plumbing and electric wiring. These items are sometimes let to the general contractor, thus making him responsible for the entire house, but you will save some money by letting separate contracts for the work listed.

Q—Looking over my specifications I see a great many things that I do not understand. I am unable to tell whether they will increase the cost of my building or whether they are the least expensive of the kinds. How can I tell what is going to be supplied, and after the contractor has put it into the building how can I tell that he has given me what the specifications provide for?

A—This question shows very clearly some of the technical problems which arise in the construction of all buildings. It is impossible for the average builder to gain a complete understanding of these matters. They require long experience and extensive practice. We recommend to you that you employ a first class architect to guide you in these matters.

HELP FOR THE MAN WHO WANTS TO BUILD

PROPER BRACING BIG FACTOR IN HOME BUILDING

The method of bracing a house is to run between the members of the frame certain diagonal strips in much the same way as you would brace a common box. In the floor system framed of wooden joists diagonal bridging supplies this element of bracing. Bridging is made of short pieces of plank, which are run from top to bottom of adjacent joists. A well framed wooden joist floor must have one such row of bridging in each six feet of bridging span.

One purpose of the bridging is to distribute loads from joist to joist, so that if a heavy load is thrown on any one beam the adjacent ones are brought in to help support the load. Twisting of the joists is counteracted by the bridging.

How to Lay Subflooring

A second means of bracing the joists is obtained in the rough flooring. This is a system of common boards, which are run across the top of the joists and securely nailed thereto. Subflooring should be run diagonally so that the finished flooring can be run at right angles to the joists. In this way the whole flooring is securely bound together, one piece reinforcing the other.

In cheap construction the subflooring very often is omitted. In first class construction it must always be supplied. The boards must not be more than eight inches wide.

In framing wooden walls you should endeavor to secure a unified construction by using the same method of bracing that is used in the joist framing. Bridging is run from stud to stud, so that none of the studs can be bent without throwing into strain all the other studs on the wall. Blocks are used for this bridging. A row should be used in each story.

To assist in getting still more security in your framing, one inch boards are nailed across the studs on the outside walls. These boards are called sheathing boards, and they act in much the same manner as rough flooring over the joists. It is not practical to run these pieces diagonally. Therefore, a single piece of board is notched into the studs so that it forms a diagonal brace running from the corner post down to the base on which the studs rest. The purpose of this brace is to prevent racking of the frame. The brace resists any side-wise motion which would have the effect of throwing the walls out of plumb.

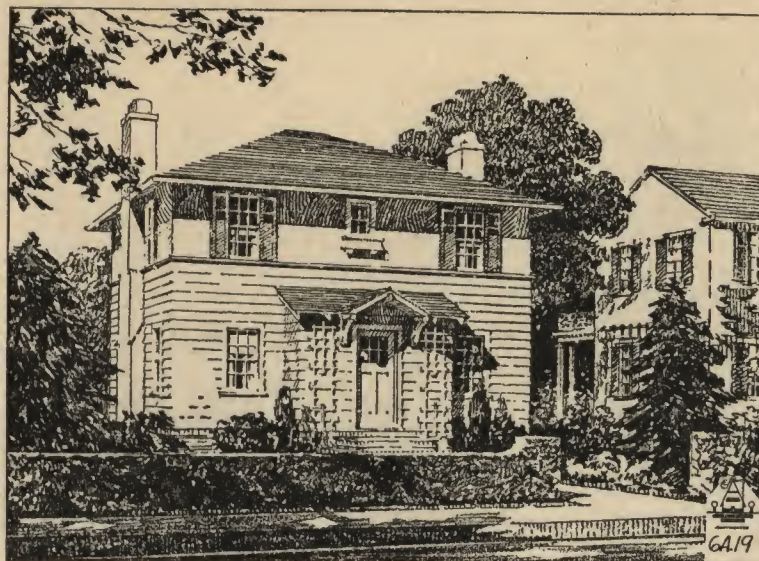
Proper Framing Saves Money

Perhaps this description of framing and bracing sounds technical, but you will realize that to build a house and protect the dollars you spend for construction, it is necessary to proceed in a scientific way. Construction cannot be left to rule-of-thumb methods. You will see how extremely important this is when you consider that money spent for proper framing and bracing reduces your yearly bills for repairs. The slight extra expense for proper bracing and framing is, therefore, a highly desirable form of permanency insurance.

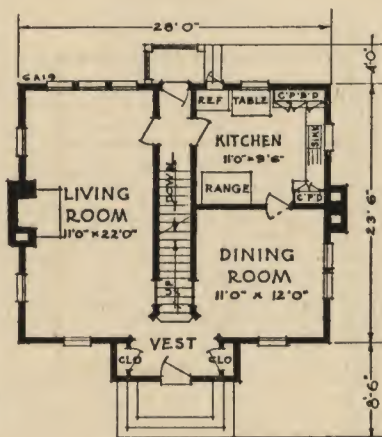
Provided that good materials are used, that the framing design is right, that all parts of your home are well fitted, there remains a final important factor—that of nailing.

A home cannot be stronger than the joints. One nail will secure a board to a stud, but there is practically no bracing to be obtained in this way. Two nails are necessary. Two nails

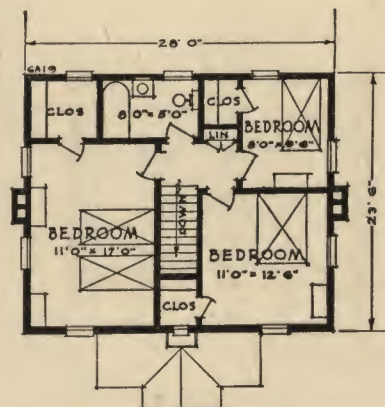
SIX ROOMS—SQUARE PLAN



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FIRST FLOOR
CEILING HEIGHT 8'3"



SECOND FLOOR
CEILING HEIGHT 8'0"

THERE is a truly American atmosphere about this straightforward, dignified, six room square house. Many homes might cost twice as much, yet not give near as much year after year satisfaction, because this house is planned along unusually fine and economical lines.

Aside from its many practical features, this is a beautiful design, showing fine simplicity in the perfectly balanced exterior. To obtain a pleasing, yet harmonious variety in the exterior, a combination of materials is used.

The house is of frame construction, with two foot brick base, and shingle roof. The exterior walls are carried out in wide siding to the second story window sills, and in stucco from there to the roof.

The two outside chimneys are finished in stucco, topped with brick.

This home has a full basement. It can be erected on a 40 foot lot, and is suitable for almost any section of the country. It is a central hall type of home. On either side of the stairway there are arched openings leading to the living and dining rooms.

The living room extends full depth of the house and has a fireplace as well as many windows.

On the second floor there are two good bedrooms, and a small room, which can serve as a child's bedroom or sewing room.

There are six closets in this house.

The cost to erect this house complete will range between \$6,000 and \$7,000. This includes heating, lighting, plumbing, ready to live in. The cost will depend upon equipment used and locality. Because of the compact plan and simple hipped roof, this home should be reasonable to build.

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will hold a stud to a plate, and these will require only half the time and material that it takes to drive four nails, but four nails are required if you want to avoid trouble.

Woods of approved grade only should be used in framing. The studs and joists, columns and beams must be of the size and grade that the

architect specifies. If you want to reduce your building costs to the lowest possible figure, don't think of saving at the expense of this part of the work.

The second of two articles appearing in these columns on wood framing.

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Q.—The stairs of our old home were steep and hard to climb. We do not want this kind of stairs in our new home. How do you get an easy stair?

A.—The relation of width of tread to height of riser is important. The higher the riser the narrower the tread must be. The lower the riser the wider the tread. Some state laws prohibit for residences risers that are more than eight inches in height. The tread corresponding to this riser is nine inches. This makes a steep stair, but it will be easier to climb than one in which an eight inch riser is combined with a 10 inch or wider tread, even though this stairway would be less steep than the other. The usual height of riser for homes is about seven and one-half inches, and the width of tread about 10 inches. A common rule of thumb provides that the sum of twice the height of the riser and the width of the tread should not be more than 25 inches or less than 24 inches.

Q.—Are built in sideboards out of style? I notice in several of the new homes that separate buffets are used in place of the built in ones which have been built so frequently in the past.

A.—It is difficult and expensive to build a "built in" buffet that will be in style with the remainder of your dining room furniture. In other words, you can get a handsome separate buffet for less money than a "built in" one.

Q.—Is it practical to include a garage in the body of a house.

A.—The chief advantages of an attached garage are that it is more easily warmed and it is more convenient to the owner. The advantages of a detached garage are less cost, less fire risk, and less odor of oil and gas in the house. The attached garage usually costs more on account of special requirements as to construction that are dictated by the city building codes. Such a garage has to be enclosed in masonry walls with a fireproof ceiling slab above and a steel clad door entering upon the other portion of the house. A detached garage does not necessarily have to be built in this expensive manner. It is difficult, but not impossible to compose the built in garage to the design of a small house.

Q.—With \$3,000 capital, how can I proceed to build a \$5,000 house?

A.—You would be justified in putting your \$5,000 house on a lot costing in the neighborhood of \$1,000. That would make your whole investment \$6,000. You have enough cash to cover half of this total expense. You should be able to secure the balance of the needed money on a first mortgage and at a favorable rate of interest. Investment companies consider a risk of this kind of very high class if the house is of good architectural quality and if it is built in a good neighborhood and of good materials. The larger the proportion of money you borrow, the greater the risk becomes to the one who lends and therefore the larger the interest and commissions on the loan will be.

HELP FOR THE MAN WHO WANTS TO BUILD

GOOD PAINTING SAVES UPKEEP ON YOUR HOME

Plain, common sense dictates that good painting is a good investment from every point of view—appearances, satisfaction, service, money values and credit.

When selecting the paint for your home, keep in mind that you want service. You want paint that will not crack, peel, blister and produce rough surfaces. Experts say that the real test of paint is judged by the surface it leaves for repainting. It is worth while to remember this fact. It may save you money because, after a number of years have passed and you come to repainting your home, if the paint has stripped and peeled, if the exterior is water soaked and infected with germs of decay, it will cost you considerably more money for repairs in addition to the paint and labor for the job.

Quality Paints Lessen Upkeep

Quality paints for your home, properly applied, will resist weather conditions. They age gradually and evenly if the surfaces are first well prepared; color will be permanent and resist water. When you repaint, your previous work will be easily and quickly covered.

It should not be necessary to argue about the desirability of good paint. And yet, many home builders "cut and skimp" when it comes to painting. Perhaps the most costly painting mistake is trying to save a few dollars by doing without the "extra" coat of paint which would insure permanency, longer service and lessen your painting upkeep.

One of the many lessons that have been learned from extended tests is the superior painting results obtained with three coats rather than with two coats of paint. Two coats are insufficient to give proper protection to new wood, and on the best types of work four coats are applied.

For repainting work, while two coats are usually sufficient, some people believe that the cost of an additional coat of paint is not an expense, but a saving in the end for the repainting period is thereby considerably postponed.

Best Seasonal Lumber Essential

One of the chief requisites to a successful job of painting is well seasoned lumber. Such lumber is not only stronger, but in a much more receptive condition for paint.

The particular locality in which homes are built often has a bearing upon the type of lumber selected. While it is true that the painting of each kind of wood demands the special consideration of the painter, it has been found that a high grade paint is well suited for the preservation of any kind of wood, provided the paint is properly treated in the hands of an intelligent workman who can produce lasting results on almost any type and almost any climate.

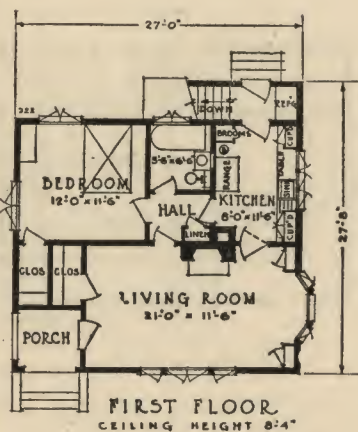
It is needless to say that painting in damp, cool or wet weather is not practical. Be sure all your wood surfaces are clean and thoroughly dry. Wait until the interior plaster has set and dried before painting the exterior because you will then eliminate chances of plaster dampness being drawn through the wall into the outside finish.

This is the second of a series of articles to appear in this column on painting.

Big Small-Home at Low Cost



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THIS three-room bungalow, though small and unusually simple in design, really possesses extraordinary merit in many ways. If you study the floor plans below and compare them with the perspective drawing you will see how perfectly this home meets every requirement of a modern small dwelling. Its compact design, convenience, splendid room arrangement and many comforts show the sort of expert planning that is seldom given to a three-room house.

This home should be reasonable to build, having an almost square plan, a simple type of pitch roof, and no waste space or materials. The beauty of the home depends upon its good lines, proportions and a few carefully studied details like the triple window in front, the pretty bay on the side, the dignified hooded entrance.

Stucco seems to be the logical material in which to carry out this design, although the house can be built of siding exterior if desired. The plan calls for frame construction with stucco on metal lath exterior, stucco chimney, and a shingled roof. The casement windows likewise maintain the spirit of the style. There is a ventilated attic space under the roof.

This house can be placed on a 38 foot lot. It is a bungalow type with all the rooms on one floor. The feature of the plan is the living room. It is unusually large with a brick fireplace, built-in corner cupboards, and the room has been so designed that the dining table can be set at one end. At the other end is a huge coat closet.

Though small, the kitchen has been specially designed to lighten kitchen work. It is supplied with plenty of cupboard space. The large, square bedroom has an ideal place for the double bed, a big closet and windows on two sides.

If extra sleeping accommodations are desired, an in-a-door-bed can be installed in the large closet off the living room.

There is a full basement under the house. This home erected complete, including heating, lighting, plumbing, ready-to-live-in, should be built at a cost ranging between \$4,000 and \$4,500, depending upon equipment. This cost can be lessened by eliminating a number of features, such as the fireplace, basement partitions, which would in no way lessen the substantial construction of the home.

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Q—Is it necessary to paint all the wooden trim on the back before it is nailed against the wall?

A—This is not necessary. However, it is desirable. The advantage of back painting the trim is that the woodwork is thereby protected from absorption of moisture and there will be less swelling and warping due to this condition. It is of prime importance that no trim shall be brought into the building until the plastering is entirely dry. We advise you not to have any of this woodwork brought on the job until after you give your contractor permission to do so. Do not try to hurry this part of the work.

Q—Is it necessary to provide insulation in addition to building paper. If paper keeps out the wind, what need is there of other insulation such as that obtained through the use of heavy felts.

A—These two devices, the paper and felt, serve two distinctly different purposes. The paper serves only as a wind stop. It has a very slight efficiency as an insulator, but as a single sheet is not worth while taking into account. The felt is not a wind stop. Most of the materials used in making insulating felts are quite porous and wind passes through them very readily. The porous quality of these felts, however, renders them distinctly valuable as an insulating medium, for changes of temperature will not readily pass through the many small air cells contained in these materials.

Warming a house involves two functions in your heating plant. One of these is to supply warmth to overcome the infiltration of wind through walls and around windows. If the house is well weather papered and there are weather strips or storm sash at the windows, the draft on the furnace to overcome this cooling will be reduced to the minimum. The other function of the heater is to supply heat to balance losses which occur through the conductivity of materials in the walls and the glass in the openings. Cold goes through the paper applied for wind stopping. It goes through the walls at various rates depending upon the kind of materials of which the walls are built. It naturally goes through glass. We have no means of insulating glass excepting by using it in two layers, thus including an air space between, hence the storm sash. Means of avoiding heat loss through walls is obtained by insulating the walls with one of the commercial forms of felt. There is unquestionably a greater loss through the conductivity of walls and glass than there is through infiltration of wind. Therefore it is especially necessary that the insulation be done very carefully and completely. Do not forget that a well insulated house will be more comfortable in summer.

HELP FOR THE MAN WHO WANTS TO BUILD

GOOD PAINT WILL STAND UP UNDER SEVERE WEATHER

The most severe tests have proved that high grade, prepared paints give satisfactory results under any climatic conditions.

One of the oldest and generally used of white pigments is white lead. Ground into linseed oil, it produces an opaque surface and forms the base for paste paints which may be used by your painter.

Zinc oxide is another pigment of immense value and exceptional use. It is extremely white, fine and has wonderful covering and hiding power. These two are metallic pigments. Together they form the base from which most of the high grade mixed paints are made. These pigments are finely ground with linseed oil to which is added drier and thinner, along with a color pigment to produce the shade or tint required.

Seasoned Lumber Makes Good Surface

Earth pigments like ochre, red oxide or iron, umber, sienna and others are used to secure dark tones and solid colors. Linseed oil paints, manufactured with these pigments, withstand weather exposure satisfactorily.

Remember that any kind of wood left unpainted for any length of time has a tendency to become affected by the weather. It absorbs dampness, rain and moisture. When subjected to continual dampness, your wood surface becomes dark, eroded and warped. All wood should be primed, given the first coat immediately before or after its erection. Wood properly painted will last indefinitely.

The reason that well seasoned lumber gives you the basis for a good painting job is because lumber thoroughly dried is stronger and in better condition to receive paint. If there is no dampness to ooze out of the lumber and crack or blister the paint surface, the result should be a flat, smooth paint veneer held firmly to your lumber surface through absorbent and adhesive qualities of both paint and lumber. If your paint is deficient in elastic properties and applied to partly dry lumber, there is a probability the surface will crack and peel.

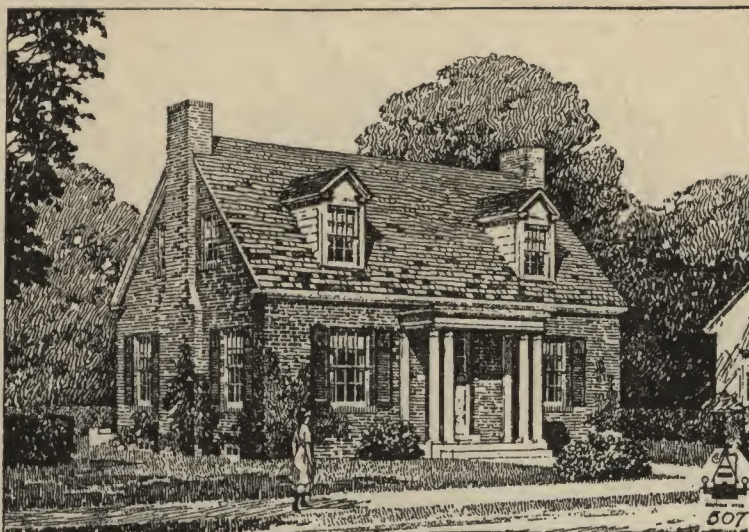
Skilled Laboratory Essential

Some lumber grades used for exterior siding may show the effect of rosin. Hot weather releases rosin found in the knots. It seeps through the paint surface, causing cracks and messy blotches. It is possible to prevent the rosin action by having your painter go over knots and rosin leaks with shellac a short time before actually painting the wood surfaces.

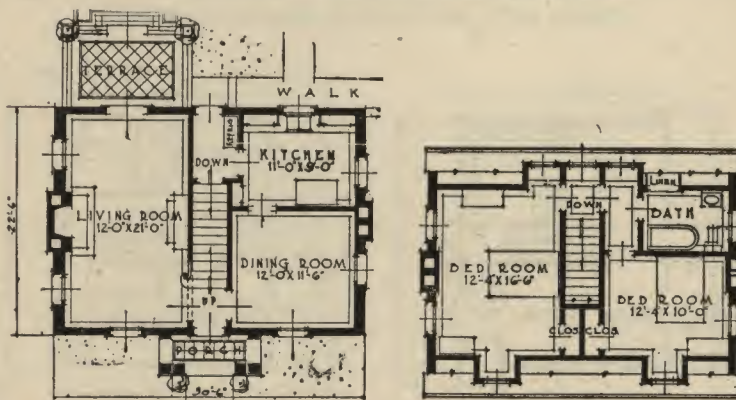
Be sure to employ the most skilled painting labor available. A good painter, who knows and understands wood painting, will be able to give you the best and most appropriate painting results for the climatic and wood conditions under which your home is built. And don't forget to provide him with quality standard paints by a reputable manufacturer. It will cost you less in the end.

This is the third of a series of articles on painting to appear in this column.

Five Room Brick Home



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HERE is a five room brick Colonial home which should make a strong appeal to home builders who desire to combine a straightforward, conservative type of home with modern comforts and conveniences and strict building economy. It is a type which will make one's money go as far as possible.

The exterior has a charming entrance. The well placed, clean cut dormers on the roof, with the wooden shutters and inserts at dining and living room windows, add much to the exterior attractiveness of the home.

The plan calls for brick exterior, brick gable and chimneys, and roof to be shingle, either composition or wood as preferred. The general color scheme of the exterior is broken tones of common red brick, roof green, exterior woodwork painted white, and shutters green.

The home is unusually compact. Its directness of plan uses every inch of space to excellent advantage. Spacious openings from the entrance hall into both the living and dining rooms are so placed that you must cross the hall from the living room before entering the dining room. This arrangement gives both living and dining room ideal positions in the general plan.

The kitchen is spacious and yet so designed as to lighten labor. Practically all the kitchen work may be done on one side of this room, which results in minimizing the steps of the housewife. The kitchen is reached from the outside of the house through a rear hall which contains an icebox and cupboard space above. There is a full basement under the house with heater, fuel and laundry rooms.

Two beautiful bedrooms with light and ventilation on both sides occupy most of the second floor. There is plenty of closet space. The bath is provided with a linen closet and medicine cabinet. There is no waste hall space.

Erected according to the plans, this home should be built, including heating, lighting, plumbing, ready to live in, between \$5,200 and \$5,700, depending upon location and the equipment the home builder selects. Expensive equipment will increase the cost, inexpensive equipment will lessen the cost. To arrive at an approximate cost in your locality, multiply the cubic contents, 16,630 feet, by your current local cubic foot cost.

If the home builder desires, this house can be erected of frame construction with exterior either sided or shingled. As the home now stands, it is as simple and inexpensive to erect as any home can be designed to include the equipment specified within the general dimensions of the house.

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Q—I am just about to begin the building of my new home. The first thing to do, of course, is to excavate. Are there any special things that I ought to know?

A—This work is usually handled by the general contractor, who will under your direction stake out the location of the proposed building on the site, and who will fix the levels for the grade line. The most important matter to be observed is cutting the excavation accurately to the lines drawn and to the proper depth. The black soil should be kept separate from the other excavated material and piled by itself to be used for the finished grading of the lot. If you need the remainder of the excavated material for grading, it should be kept. Otherwise make arrangements with your contractor to carry it away. Be sure that enough is saved for all necessary back filling of the foundation walls and rough grading. If the basement walls are to be waterproofed, have the excavation cut a foot beyond the location of the walls. In some localities where the excavation is in clay, the embankment may be used for one side of the form work, thus saving expense.

Q—We are just ready to put in the electric wiring in our house. I understand that the wires are sometimes put in metal conduits and at other times the wires are stretched between porcelain knobs and are threaded through rubber tubes where they pass through studs, etc. Which of these is better?

A—The conduit system will cost somewhat more than the knob and tube system. It is recommended as providing better fire protection. In general, metal conduits are distinctly desirable; in smaller buildings there is a question as to whether the expense is worth while. If the knob and tube system is well inspected so as to insure its having been properly constructed, it will do very well in small separate buildings. You are obliged in any case to follow the building code of your city. Where conduits are used it is absolutely necessary that they be perfectly dry.

Q—Following your recommendation we used casement windows in the sunporch and double hung windows elsewhere. Just now during warm weather we are grateful for the ventilation that the casement windows give us on the sunporch. However, in cold weather last winter we found a great deal of cold air leaking in around these windows. Are there any means of avoiding this condition?

A—The advantages which may be stated for casement windows are lost if they do not prove practical in cold weather. We recommend wherever casement windows are used that a firstclass type of weather strip be used in addition. Where this device is used the windows will prove to be more wind tight than double hung windows without strips.

HELP FOR THE MAN WHO WANTS TO BUILD

EMPLOYMENT OF CONCRETE BLOCK IN HOME BUILDING

Concrete today is a most widely used material for foundation and cellar walls, and in many places also is being used for the upper walls of the house.

Concrete can be used for this in two ways: one is by erecting temporary wooden forms and placing or pouring wet concrete between the forms. The concrete hardens in a few days, after which the forms are removed and the wall remains. The other method is through the use of concrete blocks. These are made in a factory, hardened in steam and laid up in cement mortar on the job by masons, in the same way that large bricks would be laid.

Local Conditions Govern Choice

There is very little difference in the relative merit of monolithic concrete and concrete blocks for foundation walls. Very often local conditions or cost govern the choice. If there is a local cement contractor who possesses a set of wood or metal forms of standard height for cellar wall work, and who is active in this business, he very often will make a lower bid for the poured cellar wall than a mason would for the same work in concrete blocks. On the other hand, in many cities masons get a larger percentage of this business than concrete contractors, for the concrete block wall in those cities is the cheaper. This is sure to be the case if the upper walls, as well as the cellar walls, are to be of concrete, for the erection of forms above grade calls for a good deal of expert labor and supervision in setting and bracing so that the forms will be exactly plumb, and this usually adds to the cost. But there is no more difficulty in laying concrete blocks at second floor level than at the ground level. When the masons have finished the cellar walls, having all their lines and grades set, it seems a logical thing to continue their work up to the roof level.

External Coating Needed

For appearance sake, concrete blocks should have an external coating of Portland cement stucco. The stucco house is becoming more and more popular. The Portland Cement association states that enterprising builders have found the cost of concrete blocks, with stucco finish, rarely exceeding by more than 3 per cent the cost of frame construction. Concrete blocks are made to withstand the high compression test. They are non-absorbant and form an ideal masonry construction.

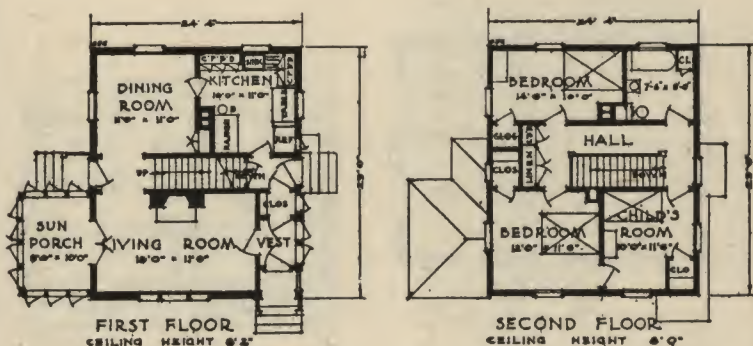
The time to make a basement wall water tight is when it is being built. It costs less to build a water tight concrete wall than to repair a leaky one later. Properly made a concrete block wall is water tight. The joints must be laid up in good cement mortar mixed in the proportions of at least one part cement to three parts sand. A richer mixture would be better. The joints must be well filled with mortar and the vertical joints buttered at each end.

(This is the first of a series of articles to appear in these columns on concrete foundation walls.)

SIX GOOD ROOMS—LOW COST



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THE simple lines and good proportions of this substantial looking home are especially well emphasized by the use of two materials on the exterior—brick and stucco. Any possible plainness that might have resulted from the almost square plan and hipped roof has been offset by the pleasing combination of brick, stucco, the handsome entrance porch, and the sunporch at the side. This is another of the popular square type hipped roof house where every inch of floor space is used to advantage.

Type of house—full two story. **Style**—American. **Suitability**—adaptable to all regional and climatic conditions. **Size**—six primary rooms, bath, sunporch—basement excavated—no attic. **Dimensions**—outside main portion of the house 24 feet 4 inches wide, 29 feet deep—sunporch 8 feet wide, 10 feet up—ceiling height, first story, 8 feet 2 inches; second story, 8 feet.

Exterior walls—frame structure, brick veneered to top of first floor windows—stucco from first floor windows to roof. **Roof**—either wood or composition shingles.

Cost of house—cubical contents approximately 20,000 cubic feet. This house erected complete, including heating, lighting, plumbing and ready to live in should cost between \$7,000 and \$8,000, depending upon the equipment used. Simple equipment will lessen the cost. Expensive equipment will increase the cost.

Features of the house—timber and stucco panels between front entrance and side doorway; exceptionally spacious living quarters provided by the combination of the living room and sunporch; fireplace and French doors in living room; two grade entrances beside front entrance; compact kitchen planned to economize labor and minimize steps; outside icing; all sleeping quarters outside rooms with cross ventilation; plenty of closet space; built in linen closet in upper hall.

Stock and standardized equipment has been used wherever possible. This insures the elimination of extras and waste. This home is modern, practical, economical in use and space as well as construction—a type of home that will adapt itself well to any community and the needs of almost any family requiring a six room house, bath and sunparlor.

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Q. What is the best way to avoid extras in the building of my home? My friends, who built recently, found that when they had to pay the bills their house cost a great deal more than they thought it would. I want to avoid this. Please tell me how.

A. The time to avoid difficulties of this kind is before the work is started. You can not hope to avoid "extras" unless your plans and specifications are complete and that means having them done by an architect who knows his business. If you find you must make changes during the building, have the contractor give you a figure on the cost of each change before you order the work done, and always have transactions of this kind in writing.

Q. My specifications call for boards in the under flooring to be not more than 8 inches wide, but those furnished to the contractor are 12 inches wide—some of them even wider. Is there any objection to using the wider boards?

A. As a rule, the narrower any kind of floor is the better it will be, provided good workmanship is used and the materials are all right in themselves. The reason for this is that the shrinkage across a narrow piece is less than it is for a wide one, and that the cupping of the wider piece due to drying out of the wood is greater than in the narrower piece. Consequently, if very wide boards are used for subflooring, you must expect an effect upon the finished flooring which probably will be harmful to it. We advise you to have the very wide boards sent back and the specifications followed.

Q. The designs you show in these columns are very often colonial houses. If a great many of these houses are built will they not become common and will that not lessen their value? I like this style, but I do not want to build something that will be out of style later on.

A. The colonial type of architecture has been "in style" for more than 200 years. The houses we are building today in this type of architecture are very similar in appearance to those which were built in the very early period of our nation's history. The fact that they still are in style today would seem to prove that they will continue in style indefinitely. As a matter of fact, the basis for the colonial style is so pure that architects will continue to draw upon it for the designs of houses and other buildings long after the buildings which we are building today have fallen into decay.

Q—What is the least expensive way to finish woodwork?

A—Stained and varnished woodwork costs less than painted finish; painted finish costs less than enamel. The soft woods used as bases for any of these finishes cost less than hard woods. Some very beautiful effects may be obtained with stains on soft woods.

HELP FOR THE MAN WHO WANTS TO BUILD

LEAKY BASEMENT WALLS ANNOYING AND EXPENSIVE

Leaky basement walls not only are a source of annoyance to home owners, but the cost of repair is very apt to be incessant. Basement walls can be made watertight, and the time to do this is when a house is being built. Common sense dictates that it costs less to build a watertight concrete wall than to repair a leaky wall later. Some people think that a concrete block wall is not as watertight as a monolithic wall. This is not true, if the joints between the concrete blocks are laid up in good cement mortar mixed in proper proportions. A mixture of one part cement to three parts of sand will give you a tight wall. A richer mixture would be better. Joints between the cement blocks should be well filled with mortar and the vertical joints "buttered" at each end.

Don't Build in Damp Location

Where ground water is likely to rise in the soil, precautions must be taken to insure that the cellar wall will be dry. The usual way is to plaster a half inch coat of cement mortar on the outside surface of the cement blocks. As an additional precaution, two coats of hot tar should be mopped onto this mortar and carried up to about three inches below the finish grade. In extremely wet soil a sub-soil drainage also may be required. It is not advisable to build your home in such a damp location if it can be avoided. All concrete walls should be insulated in order to prevent the condensation of moisture on the inside. This condensation of water is what is commonly called "sweating."

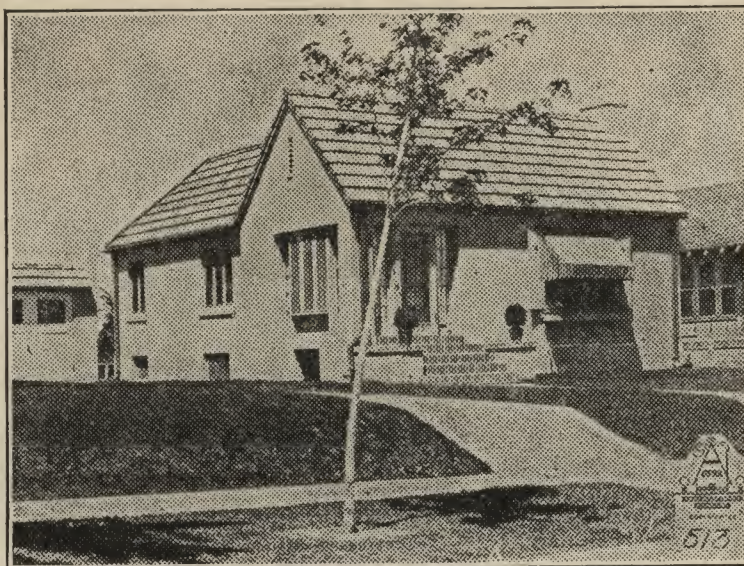
Popular Impressions About Walls

The popular impression that a concrete wall is damp is not due to water penetrating the wall, but because concrete is a fairly good conductor of heat and cold and, therefore, moisture on a humid day will condense on the inside of the concrete wall if the temperature falls. The walls should, therefore, be insulated by a continuous dead air space in the center of the wall or by furring and lathing, and when so treated a concrete house will be dry and comfortable and remarkably economical in fuel consumption. The same principle applies to the construction of any kind of masonry walls.

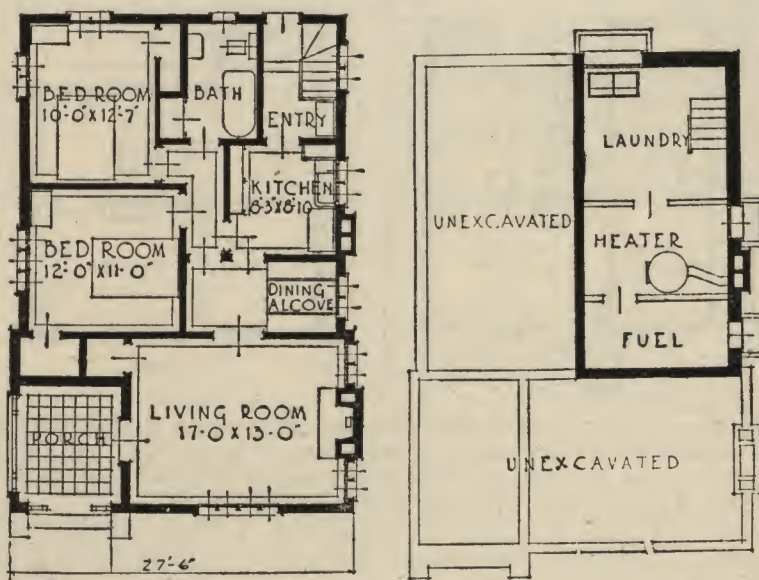
Proper insulation by means of furring or otherwise is essential. Frames for doors and windows may be set before the walls are built, or they may be inserted after masonry work is finished. They should be carefully pointed up on the outside before the stop bead is put on. A badly pointed window frame in a masonry wall is a fruitful source of drafts in a building.

(This is the second of a series of articles to appear in these columns on concrete foundation walls.)

Stucco on Hollow Tile



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HERE is a bungalow that combines beauty in design, excellence in plan, economy in construction and marked individuality in type. Because it is a house of rectangular form, without broken walls, the problem of obtaining all these qualities is much more difficult than if the house were larger and with more variety of outline.

Type of House—One story. **Style**—Colonial. **Suitability**—Adaptable to all regional and climatic conditions. **Size**—Five rooms, bath, dining alcove, porch, basement partially excavated, attic space. **Dimensions**—Outside, 27 feet 8 inches wide by 39 feet deep. **Ceiling height**, first floor, 8 feet.

Exterior Treatment—Walls, stucco on hollow tile. **Steps**—Brick. **Roof**—Tile; wooden or composition shingles can be used if preferred.

Cost of House—Cubic contents approximately 16,500 feet. This bungalow erected complete, including heating, lighting, plumbing, ready-to-live-in, should cost between \$5,500 and \$6,500, depending upon equipment used. Simple equipment will lessen the cost, expensive equipment will increase costs.

Features of the Home—Compact and economical arrangement of rooms; living room lighted on three sides and dominated by attractive fireplace; dining alcove opens directly from living room and kitchen. Kitchen is small, but planned to economize labor and minimize steps. The home contains four spacious closets. The rear bedroom and bath open off a private hall. The glazed porch is a feature. Stock and standardized equipment used wherever possible. This insures elimination of extras and waste.

This home in general is proportioned and detailed with discrimination and possesses the fine characteristics of Colonial style. Its unusual style is due to the fact that it is simple and refined in outline. It will look well in any community.

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Q—What is it that determines the height of a ceiling?

A—The ceiling heights of small homes always are very definitely determined by the economies of construction. They also are determined by appearance. The problem is to have a ceiling height which will look well, will not be depressing, and yet which is not so great as to increase the cost of construction and heating. In the south the ceiling heights can be greater than is proper or desirable in the north. Most cities have ordinances which require that these heights cannot be less than a certain limit which is considered desirable for health. The ceiling height in the basement should be considerably less than it is in the living quarters of the house. If a warm air furnace is used, this dimension should be greater than for hot water or steam heat. The purpose of this is to facilitate the flow of heat from the heater to the risers.

Q. Please tell us whether you think underflooring is necessary. If it is used, is it necessary to put paper between the floors? What is the purpose of the paper?

A. Underflooring is absolutely necessary for rigid construction in modern frame buildings. This flooring braces the house, insures the necessary rigidity of the framing system, and with very little expense insures a very much more permanent building. We recommend that paper or felt, preferably the latter, be used between the sub and finished floors. This serves somewhat as a sound proofing. Used between the sub and finished floor of the first story it will prevent dust from the basement coming through the flooring system. The small home builder is very likely to see only the finish of the building. Do not neglect your interests when the substantial parts of the building are being put together.

Q—What is the best way to paint screens?

A—The cheapest way to have this done is at the mill. Screens usually come onto the job with a shop coat of black paint. They are made this way by the mill for stock and therefore cost less than when the painting is done to your special order on the job. If the screens are painted on the job in color other than black they require several coats with the result that expense is increased.

Q. Why does a one story bungalow cost so much more than a two story house of the same number of rooms?

A. The increased cost of a bungalow comes from the fact that more materials are used and more labor is required. The foundations are longer, the excavation is larger, and the roof expanse is greater. All this comes without adding a single foot of extra space to the building. The square footage of walls is practically the same in the two types of buildings. Many people prefer the one story house, thinking that it will give them a more comfortable home, but this is not always borne out in experience. It is very difficult to get cross ventilation in every room of a bungalow, whereas in a two story house this is a very simple thing.

HELP FOR THE MAN WHO WANTS TO BUILD

PROPER HEATING PLANT FOR YOUR HOME IMPORTANT

Before you decide upon the kind of heat for your home, it will pay you to investigate the various methods of heating—their cost and what you may expect in service from the system you install.

Don't make the mistake of trying to save a few dollars and select too small a furnace or boiler. What you need is a heating plant that will operate economically and give you every last ounce of heat from your fuel with the least possible waste.

Heat Without Economy Is Waste

A system that provides you with an abundance of heat without economy is a waste—not only of heat, but dollars.

One thing you may be sure of—whatever you install—the item of expense for heating is continuous. It costs money to buy fuel, it requires fuel to produce heat, and unless you are located where heat is a secondary consideration, you must provide fuel to heat your home a certain portion of the year.

Heating cost is one of the major items in your housekeeping. To minimize this item, select the most appropriate heating system available and master every detail in its operation.

Because some friend or neighbor recommends a heating system, don't consider it final judgment as to your own needs. Homes differ in their heat requirements due to size, shape, location, climate, habits of the family, and particularly how well the house is built and insulated. All these things must be considered in selecting your heating system.

Why Heating Plants Give Trouble

The two reasons why some heating plants give constant trouble are: First—Failure to install the system properly according to the manufacturer's instructions. Second—Failure on the part of some owners to run the plant properly after installation is made.

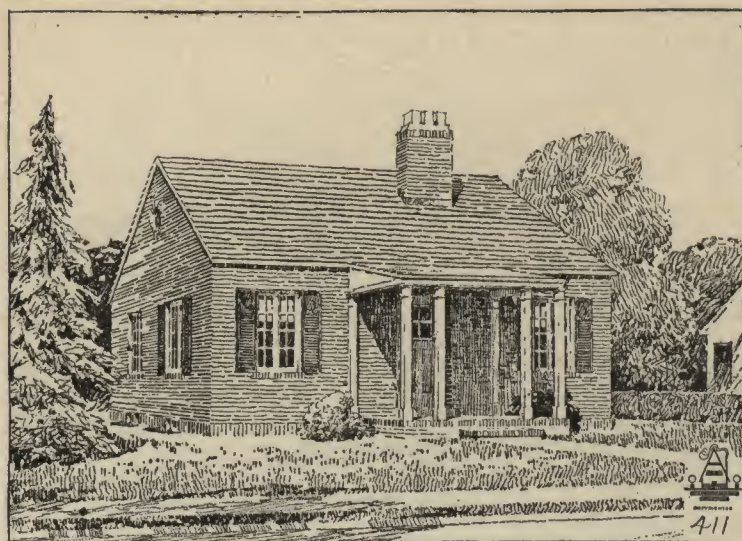
Someone has said that selecting a heating plant for your home is like buying a watch. "The inside is much more important than the outside."

If your home is located where rapid changes of temperature occur in a few hours, you should provide a heating system that will respond quickly to your demands. Vapor and vacuum systems, steam and warm air furnaces meet such requirements equally well. Hot water requires a somewhat longer time to heat than other systems, but it cools less rapidly than others. This is its advantage.

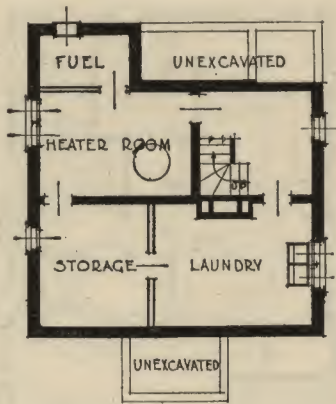
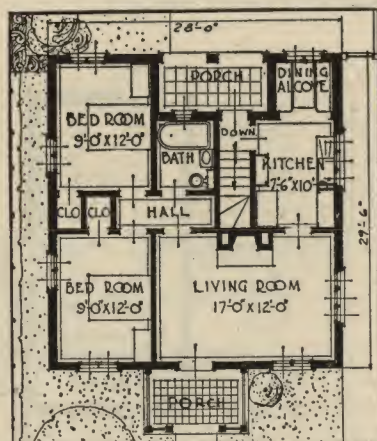
Suppose your home is located where it received broad sweeps of cold wind—"exposed to the weather on all sides." Radiator heating will undoubtedly give you satisfactory results. You can distribute radiator heat and control it in all portions of your home, independent of outside conditions and also independent of the peculiarities of your home plan.

This is the first of a series of articles on heating and heating plants to appear in this column.

Common Type But Not Commonplace



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THIS four-room brick bungalow of simple Colonial style is attractive and appropriate in any section of the country. It has been planned to meet the most exacting conditions of the modern home builder. It provides a lot of comforts and conveniences for little money.

The home is brick construction extending to the full height of the gable. The round windows in the gables, the well placed chimney with terra cotta chimney pots, the close, but rather severe cornice, form an altogether pleasing and distinctive exterior appearance.

The uniform balance of the windows on the front of this home with its green shutters adds still another feature. To home builders who find it difficult to reconcile the simplicity of this home with others of similar size, but of more commonplace type, it should be pointed out that beauty in architectural design results from simple details and plain surfaces in nice proportion rather than many things out of scale and scattered hit and miss in an attempt to obtain "effects" and ornateness. In home building, as in painting a picture, it isn't what you paint, but how you paint it.

The beauty in this home comes from a frank expression of simplicity and appropriate use of materials. There is no money wasted in meaningless ornaments. It is simple, restrained and dignified, combining four straight walls, an inexpensive gable roof with uninterrupted line, producing an effect of the house being firmly tied to the ground on which it stands.

The home contains four primary rooms, bath, a dining alcove and full basement. A feature of the home is a combination kitchen and dining alcove with two exposures. The alcove opening directly from the kitchen and overlooking the garden should prove a source of continual happiness to the housewife.

The bedrooms, both opening from a private hall, have cross ventilation, ample closet space and adequate light. For compactness of plan and abundant conveniences and comforts, it would be indeed extremely difficult to improve upon this home.

The cubic contents, 19,000 feet. The cost to erect this home complete according to the plans will depend upon location and equipment selected by the home builder. Built according to the plans, including heating, lighting, plumbing, ready-to-live-in, the house should range in cost between \$5,500 and \$6,500.

The exterior color scheme, stiff mud red flash brick in broken colors of red and brown. The roof either wood or composition shingles brown-green. Exterior woodwork white, blinds apple green.

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Q—My lumber dealer has shown me recently where I could save a considerable sum of money by using what he calls "factory" flooring in place of the "select" oak which was specified. The saving he said would amount to about \$50 per thousand feet of flooring. I would like to know what the difference is in quality between these two grades of flooring.

A—All lumber material is subject to the natural defects which are found in timber. Among these may be named knots, sap, stain, checks, twisted grain, and rot. In the manufacture of flooring the grain may be torn, machine marks may be left in the wood. An inferior job of planing and smoothing may be performed. In the finished board all these defects are observed and the lumber is graded accordingly. None of it is thrown away. The pieces without defects are put into the highest grade; the pieces with only minor defects are put into several intermediate grades; and those with major defects are put into the lowest class. "Factory" flooring is just as durable as select flooring. The former, however, contains more defects than the latter. Certain knots, for example, not permitted in "select" flooring will be admitted in "factory" flooring. The color of "factory" flooring is not as satisfactory as that of "select" flooring, and there are more short lengths in the "factory" grade than in the other. We are favorable to the use of the lower grade of material where durability and beauty are not adversely affected, but we think that using "factory" flooring in a residence, excepting one of the cheapest sort, is perhaps using a grade that is a little too low. Your carpenter will have to cut out the knots of this grade and in that way you will lose the end matching of the boards. We do not hesitate to recommend the "unselected" oak for residence flooring. Instruct your carpenter to work the darker strips into unimportant rooms, preferably those of the second story.

Q—We have just had a lot of planting done around our house. Among other things some vines were planted. As these grow will they not work into the brick work and woodwork and rot the materials?

A—The easiest way to avoid rotting in woodwork is to eliminate moisture from it. The most certain way to make it rot is to keep it damp. If vines are planted where they will run over woodwork, this wood will be kept damp and it will rot. There is some protection from dampness to be obtained in painting, but this cannot be relied upon. It is especially difficult to paint under vines. One of the greatest advantages of vines comes from the fact that they can be used to cover up old and ugly surfaces. If your home is beautiful without the vines we advise you not to grow them.

HELP FOR THE MAN WHO WANTS TO BUILD

GOOD INSULATION MEANS SAVING IN COAL BILLS

The use of modern insulating materials for homes was borrowed from the refrigeration industry, which had used cork and other materials for many years. A cold storage plant is practically impossible without the use of insulation.

Engineers and architects came to see that the materials which would keep out heat in cold storage warehouses, the insulation which permitted carloads of highly perishable fruit to be moved from tropical to frigid climates, would keep out the cold in homes.

Consequently, insulation began to appear in architect's specifications, and to be accepted and installed by builders of better houses everywhere, and so today the many materials that may be used for insulation are being used in ever increasing quantities.

Insulation Has Dual Purpose

Because insulation has the double virtue of protecting homes from both heat and cold, the movement which began in the more northern districts, in an effort to make homes easier to heat, spread throughout the country, even into the southern districts as a protection against heat.

The question as to whether or not you should use an insulating material in a small home sometimes boils itself down to the actual saving in coal each year. This saving can be figured out for any plan, and with any wall construction, but it depends, of course, upon the window and door area, the exposure, and the part of the country in which the home is built. The actual coal saving also depends upon the workmanship used in applying the insulation, the calking of windows and door jambs, beam fills and other matters of good building.

Some of the details which must be observed are as follows:

First, the space between the floor joists, where they rest on the walls, must be filled with masonry. This is called the "beam fill." It serves as an obstruction to wind and to circulation of air in the wood frame. To a certain extent, it protects your home from fire. It is recommended by fire underwriters to make wooden homes less inflammable.

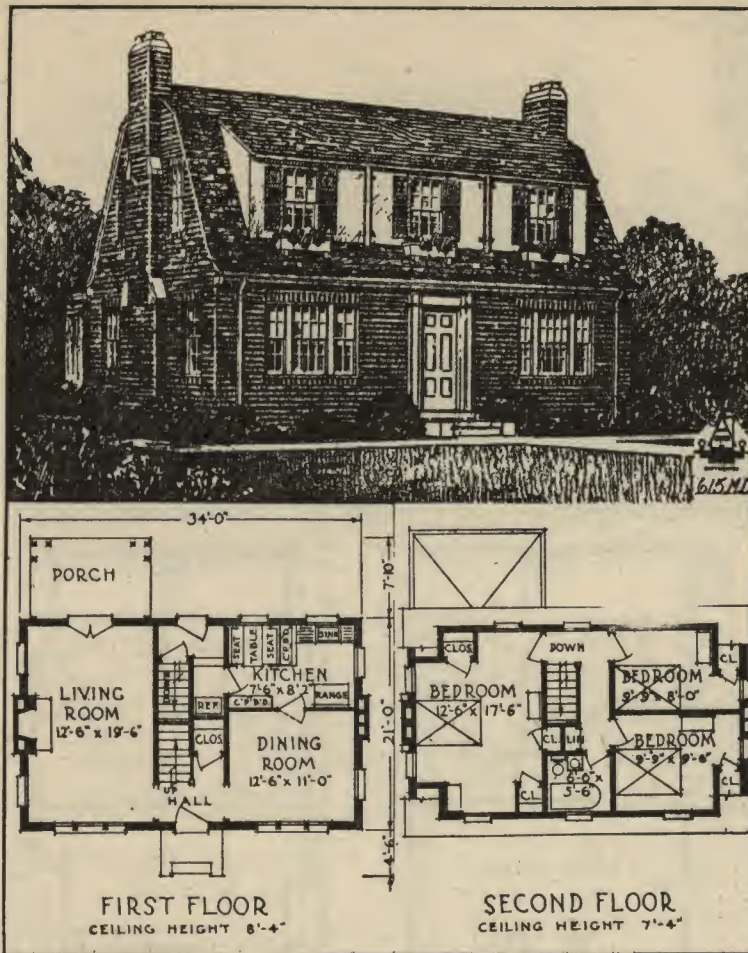
Second, insulation must be supplied in continuous sheets and in such a way that it will make tight joints, with the studdings and joists and plates. If the joints are not tight, the insulation will not be most effective. An icebox would not serve satisfactorily if any part of its walls were not insulated. The same principle applies to house insulation.

Second Floor Ceiling Important

Third, sheathing boards must be covered with a continuous layer of waterproof sheathing paper. This supplies the necessary device to stop the wind and to protect the insulating medium. Many fine insulating mediums will stop cold, but not wind. Some excellent forms of insulation, such as grass, hair and fibre, are contained in heavy paper casings, but these also are reinforced by the sheathing paper. This should not be omitted in any case.

Fourth, the window frames and doors jambs must be carefully calked with oakum or some other fibre material, because these spaces are usually too small to allow workmen to place in position the kind of insulation used generally for the walls. Finally, the windows and doors must be tightly fitted. Weather strips or storm sash

CENTRAL HALL TYPE



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ONE reason Dutch Colonial is popular is because it offers so much in comfort, space and equipment at reasonable cost. This story and one-half six room home is known as a central type, permitting the living room to extend across one entire side of the house.

In this particular plan the living room opens directly onto a porch, which in turn overlooks the garden in the rear. It would be almost impossible to imagine greater simplicity and more careful planning, insofar as space and equipment are concerned. Each room has outside exposure and cross ventilation.

The outside dimensions of the house measure 45 feet wide and 21 feet deep. A full basement is provided, including heater, fuel, laundry and storage rooms.

Aside from the dining room, there is a dining alcove in the kitchen. The kitchen is compact, but planned to route steps and cut down unnecessary labor. The kitchen sink is placed beneath a window, and also receives cross light. There are seven closets in this home.

The house is planned to be erected of frame with brick veneer, shingled roof and stucco dormer. The cubic contents total 19,552 feet. Approximate cost to erect this home complete, including heating, lighting, plumbing and ready to live in, will depend upon the locality and equipment. It is a home which should range in price between \$6,000 and \$6,500, depending upon the kind of brick used, interior finish and equipment selected by the home builder.

builder. Plans for this home are ready for immediate use.

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should be employed. The combination of these are excellent, if you can afford it.

There is another feature of insulation often overlooked by the home builder. It has to do with the location of the insulating mat, which protects the second story. Frequently, insulation is placed between the rafters. This is not the best place if the attic is not to be used for living quarters. It means that there will be some heat losses through the second story ceiling to warm the attic space. The best location for insulation, in this connection, is between the ceiling joists of the second story. Insulation

placed here is, perhaps, more effective than any place else in the building.

Some home builders try to save money by omitting insulation in the ceiling of the second story. Engineers have determined that this is certainly a place where insulation will be of greatest value. If you want to obtain the best results, if you want your home to return added dividends annually in lower fuel bills, to say nothing of the extra comfort, insulate all the outside walls of the building and the second story ceiling, too. A well insulated house, through the savings it makes in coal, pays for the entire cost of insulation in a few seasons.

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Q—Should wood for painting have open or closed pores? What kinds of commonly used woods have open pores and what kinds closed pores?

A—Porous woods are generally the hard woods. There are two kinds of porous woods known respectively as ring porous and diffuse porous. The ring porous woods are represented by the oaks, chestnuts, walnuts, and so on. The diffuse porous are represented by birches, beeches, maples and others. Paint goes more successfully on the diffuse porous woods than on the ring porous types as the pores in the former are not so apparent. However, paint does very well indeed on nonporous woods, which are generally the soft woods, represented by fir and pine. There is no difference in the appearance of birch and pine after they have been painted or enameled, but the birch being harder will stand more abuse than the softer woods.

Q—Why is it that houses built in the time of the Revolution are still standing in good repair when some of the houses in the block where I live, built within the last 8 or 10 years, look as though they were about to fall down?

A—Wooden houses built in the Colonial period were framed with heavy members of carefully selected timbers. Frames were braced so as to give great resistance to any motion that would throw the walls and floors out of alignment. In present day framing we use smaller pieces with a larger number of them than in the old type of framing. It is thoroughly possible to get with these as permanent construction as we find in the old buildings. This means adequate bracing and good nailing. Do not omit sheathing or subflooring. Bridging and bracing are an insurance against failure. Get a good job of framing even if you have to omit some luxury on account of it.

Q—Can built in refrigerators be made as thoroughly equipped and as efficient as factory made ones?

A—The built in refrigerator is not ordinarily one that is built on the job. It is simply a factory made refrigerator which is connected to the framing of the house and which is so designed that it can be iced from an outside iced door. The same type of refrigerator is available for the built in kind as for the separate ones.

Q—A short time after the floors in our house were laid they seemed to swell and buckle. The house was apparently dry when they were laid. What was the cause of this and what can be done to remedy it?

A—This was caused by the floor boards becoming very wet subsequent to their having been laid. When wood is subject to moisture or water it absorbs it and expands. This caused the buckling. It is very difficult to get warped boards down flat again. You will probably have to have that part of the floor removed and new strips laid.

HELP FOR THE MAN WHO WANTS TO BUILD

DON'T TRY TO RUSH BUILDING IN WINTER TIME

If plastering is to be done in the winter time, it is necessary to maintain some heat in the building. Be sure that the temperature is not raised excessively. If the heat is too excessive and maintained for a longer time than necessary, there is a possibility the wooden lath may become too dry and a very great shrinkage occur in the lath.

When the plastering is applied upon lath, under these conditions, it will take up the excess of moisture and warp, twist and crack the plaster plane.

What Makes Plaster Crack

If by chance the lath should become too dry through overheating the house before the plaster is applied, the laths should be dampened by throwing water on them. The plaster itself must not be dried too rapidly. This is especially true of the so-called hard wall plasters made of gypsum. When they are dried by artificial heat or through the action of hot winds, they do accommodate themselves to internal stresses brought on by rapid shrinkage, and therefore cracks develop. A slow process of drying out is desired. It should be thorough and not forced. The temperature of the house should not be allowed to drop below freezing until after plaster setting has been completed.

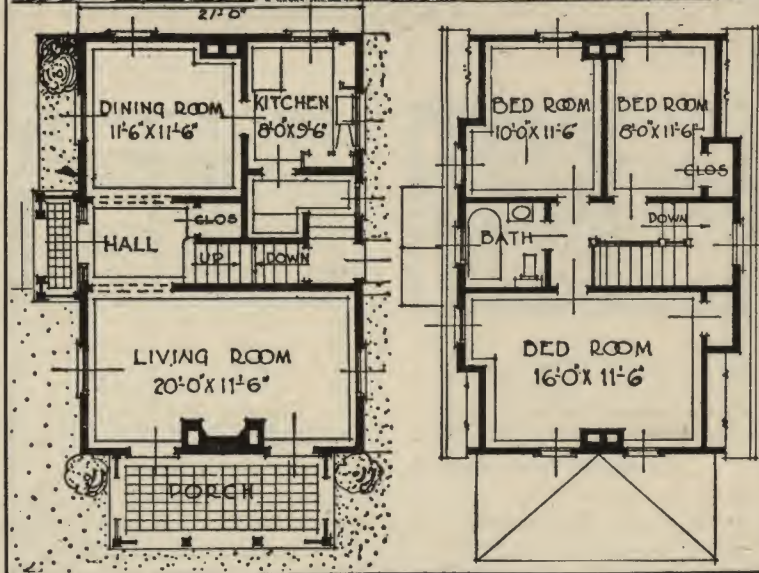
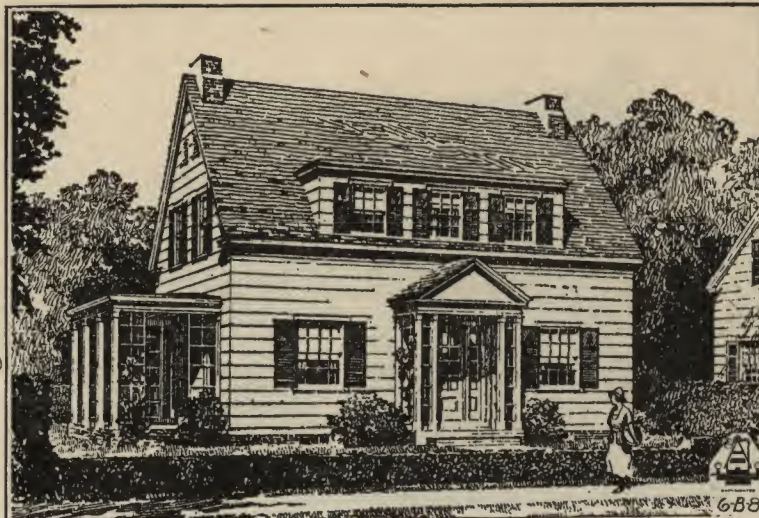
Another thing to look out for are the conditions surrounding installation of millwork in cold weather. There is more than an even chance that a considerable amount of dampness will occur about the house. This dampness will be readily absorbed by the woodwork. Wood taken in its natural state from the forest is full of moisture, which must be driven off to make the wood durable and permanent. If any considerable amount of moisture is re-absorbed, the wood will swell, shrink, warp and deteriorate with resulting bad appearance and detrimental effects to the construction of building. For that reason it always is desirable to keep woodwork as dry as possible.

Don't Make Haste in Winter

The wood furnishings of the building should not be put in place until there is a condition of dryness in the building. All that is necessary to insure this is for the contractor to use a reasonable amount of care to keep the wood dry before this work is begun. The various joists of boards and trim must be especially tight or there inevitably will be a certain amount of shrinkage. It will open the joints to a greater or less degree.

Home builders who think of the winter time as an opportunity to construct a home at a right price may feel reasonably sure of a certain promise of fulfillment. Everything depends upon intelligent understanding of the special conditions which surround construction, and the proper handling of the work after it has been started. Perhaps the best advice for home builders who want to build in the winter time is not to make haste.

AN EXCELLENT COLONIAL HOUSE



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Type of House—Story and one-half. **Style**—Colonial. **Suitability**—Adaptable to all regional and climatic conditions. **Size**—Six primary rooms, bath, porch.

Dimensions—Can be erected on a 50 foot lot. **Outside Dimensions**—38 feet wide, 21 feet deep. Attic space available, basement fully excavated, contains laundry, heater, fuel and storage rooms.

Exterior Walls—Wood construction, covered with nine inch lap siding. **Roof**—Shingles wood or composition, as preferred. **Foundation**—Either brick or concrete.

Cost of Home—Erected according to the plans, this house, complete, including heating, lighting, plumbing, painting, ready to live in, should be erected at a cost ranging between \$6,000 and \$7,000, depending upon equipment, locality and taste of home builder. It is possible to lessen this cost by eliminating a number of features, such as living room fireplace and basement partitions, and a number of other items.

Features of the Home—Living room has three exposures with double casement doors on each side of fireplace leading to porch. Kitchen is completely equipped; icebox in rear entrance. All bedrooms have crossventilation and outside exposure, also ample closet room.

Exterior Walls—Are painted white, the shingled roof variegated tones of green, the side and sash of bottle green. The color scheme of the house will carry out Colonial treatment.

An excellent plan, no waste space, economical to construct.

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Q—We are just starting to build our home. It is to be coated with stucco. The house is to be finished for us in the middle of winter. Will it be wise to put on the stucco exterior in January or had we better wait until spring?

A—It is practically impossible to put on stucco successfully when the temperature is below freezing. Even if the materials are thoroughly heated before they are mixed, the stucco sheet is too thin to retain heat long enough so as to allow the setting operation to be complete before freezing takes place. As a result the stucco may be seriously damaged. It will be to your advantage to wait until spring.

Q—The brick in the face and hearth of our fireplace is spattered with mortar that the masons did not clean up. We tried to scrape it off, but we only made matters worse. Is there any way to remove this.

A—The best method is to use a dilute solution of muriatic acid with a wire brush and vigorous brushing. Cover all the wood nearby before you start to work so as not to spatter it with the acid. Increase the strength of the acid until you get the stains removed. Avoid scrubbing of the mortar joint. Clean up the work with clear water when you are through.

Q—We plan to have the outside walls of our house of brick. We want the bricks laid in an interesting way, mixing up the short and long dimensions of the brick. How can we get this effect?

A—The short dimension is called the header. The long dimension is the stretcher. Headers and stretchers may be alternated in every course for Flemish bond or you may have alternating courses of headers and stretchers for English bond. Other combinations of headers and stretchers can be made so as to obtain beautiful results. The mortar joint is important in the matter of appearance. Tell your architect what you want and he will specify a method to satisfy you.

Q—We are going to put in the foundations for our home this fall and let the building stand that way until spring. I understand from your articles that if freezing occurs underneath the building the walls will be ruined. How shall we avoid this freezing?

A—After the foundation walls are up put on the first floor joists and then backfill—that is fill the space between the excavation and the wall with soil. Cover the footings inside the walls with straw and pile cinders or earth over this until you have built up a blanket several feet in thickness. In regions of severe winters it is desirable to use manure in place of straw for the covering of footings.

HELP FOR THE MAN WHO WANTS TO BUILD

COMPARISON OF COST IN VARIOUS HEATING PLANTS

The comparative first costs of installing heating systems vary in different localities. In a general way the initial expense of the pipeless furnace is the least. Costs are increased with other systems in the following order: Piped warm air, steam heating, hot water and vapor. Of course the final cost is more important than the first.

As an example of these comparative first costs, the pipeless furnace will approximate an expense of \$125 to \$150. The piped warm air system will average somewhere between \$250 and \$325. The steam plant will cost approximately \$300 to \$375, and the hot water or vapor system will amount to \$375 to \$475. All of these figures are extremely variable, depending upon the amount of equipment that is used and the quality of the various fittings and devices. Figures are stated only to suggest proportionate costs. They do not represent selling prices. Your heating may cost you more or less than the figures indicated.

The Cost of Producing Heat

There are numerous features which contribute to the cost of producing heat. Among these is the type of heater that is installed, for some heating systems are more satisfactory for certain kinds of buildings than others. For example, it is extremely difficult to pipe warm air throughout a large or extended building. On the other hand, it is quite easy to do this with the steam and hot water systems. A small house is peculiarly suitable for warm air, for the pipe runs can be short.

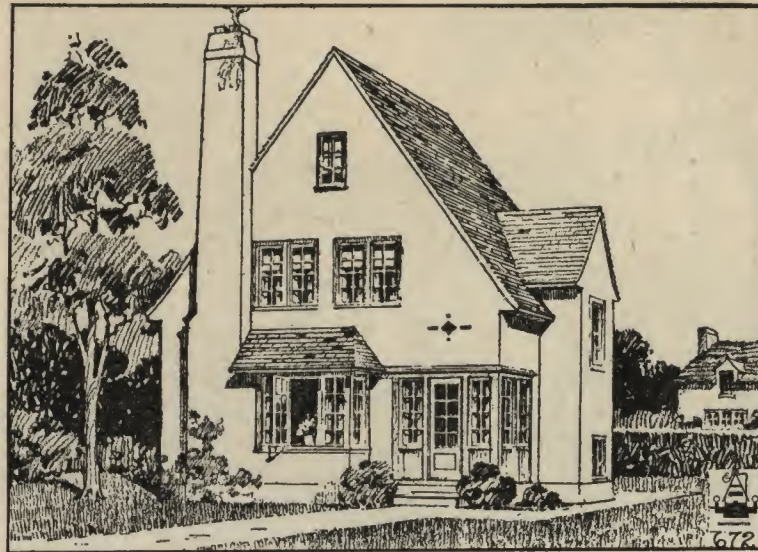
The efficiency with which a heater is run is an important factor in determining the cost of heating. No matter what kind of system you put in, whether it be of the least or most expensive, the total cost of heating your home at the end of the winter will have been very definitely affected by your understanding of your heating system and the way in which you tended it.

Why Some Heating Plants Fail

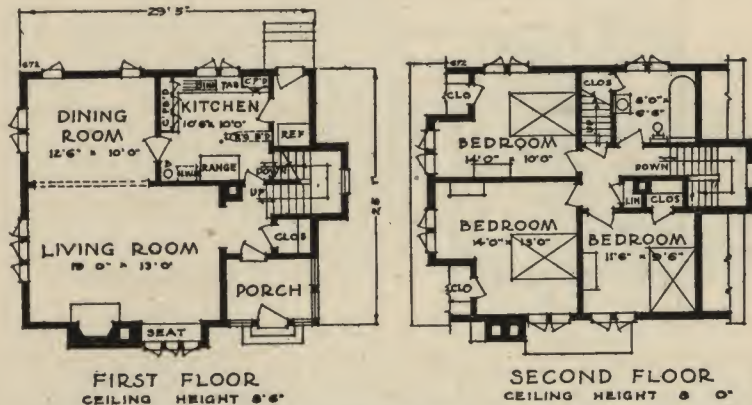
In a testing laboratory certain differences can be shown as to the efficiency of various heating systems with respect to the consumption of coal and the delivery of heat, but these differences may be entirely wiped out in the home by reasons of peculiarities, plans and exposures and by the ways in which the fires are run.

Heating plants often fail to give satisfactory service and proper economy in consumption of coal through faulty installation of the heating system. It is just as important to have fine workmanship when the mechanical devices are installed as it is in the carpentry and masonry work and the other fine work through the house. In fact, no heating system will work properly if it is installed in a haphazard fashion by a careless or uninformed person. It is generally desirable to follow the manufacturer's instructions quite explicitly in the installation of the heating system and then to have the system operated according to the same manufacturer's direction.

English Cottage Type



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FACTS, FIGURES AND FEATURES ABOUT THIS HOME

Type of house: Full two story. **Style:** English cottage type. **Adaptability:** Can be erected under all regional and climatic conditions. **Size:** Six primary rooms and bath. **Dimensions:** Can be erected on a 40 foot lot. **Outside dimensions:** 29 feet 5 inches wide by 25 feet 1 inch deep. Basement fully excavated and contains laundry, heater, fuel and vegetable rooms.

Exterior walls: Frame construction, cream colored stucco on metal lath. **Chimney, stucco.** **Roof:** Either wood or composition shingles. **Basement walls and first floor sills,** poured concrete.

Cost of home: Cubic contents, approximately 23,000 cubic feet. As an aid to arriving at the cost of this home complete, including heating, lighting, plumbing, in your locality, multiply the cubic contents by your local cubic cost. For example: If your local cubic foot cost is 32 cents a foot for this type of construction, this home complete would approximate \$7,500. This cost will vary, depending upon the type of equipment and material and quality of same selected by the home builder. Expensive equipment will increase the cost, inexpensive equipment will lessen the cost. Erected according to the plans, this home complete should be built at a cost ranging between \$7,000 and \$8,000.

Features of the home: Spacious, airy, sunny living room, pleasant even without furniture; dominated by an attractive fireplace and recessed built in seat, spanned by arched opening above the seat. This treatment provides a charming, permanent decoration for the room.

Numerous window openings provide cross ventilation and adequate light in all rooms. A wide opening between living and dining rooms make both rooms appear larger and provide light from three sides. Kitchen compactly planned to route steps and lighten labor. Basement reached from outside of the house without passing through any inside room. Enclosed front porch. All bedrooms supplied with adequate closet space.

This home is a model of economical planning with an exceedingly attractive exterior as well as plan. It is a type, even though simple, unusually distinctive in its lines, good proportions and general appearance.

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WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

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Q—We are going to use a warm air heating plant in our house. I have advertising matter from about 15 different manufacturers of furnaces. Their prices range between \$175 and \$350. There must be some difference in these heaters. Some of the differences I can see, but there are a number of the furnaces which appear to be almost identical in design and equipment, though with 50 per cent difference in cost. How can I make a selection so as to get the best furnace for the least money?

A—The warm air furnace is in principle a stove made as nearly as possible gas tight and set within a sheet metal jacket. Air is supplied to the base of this arrangement so that it circulates between the jacket and the stove and, being heated, passes to the rooms above by means of one or several pipes.

In some of these furnaces there is a rudimentary device for humidifying the air. In others there are more or less elaborate devices of this kind, some of them operating automatically. The cost will be affected by the extent of the humidifying device.

Some of the furnaces have elaborate means to baffle the smoke that passes from the fire so as to extract from it the maximum amount of heat before it goes into the flue. The more elaborate this is, the greater the cost, and in general the more efficient your furnace.

If the furnace is made of cast iron, it can be of light weight or heavy. The heavier the castings the more durable they will be. The heavier they are the more expensive.

If the furnace is made of steel the quality of the steel and the extent of weldings affect prices.

The casing about the furnace may be of a single sheet of galvanized iron, or it may be made of a special copper alloy material of greater durability and greater expense. This casing may be insulated with corrugated asbestos and have an inner shell of metal or may be made with a single thickness of metal with expense accordingly.

There are items of expense involved in the kind of registers that are used, some of them being leak proof and others not. The pipes that convey heat from the furnace to the registers may be of proper size or they may be made too small. The larger size costs more.

In general it will cost more to install your furnace properly with correctly designed bends and turns and correct insulation than it will to put it in a haphazard and thoughtless way.

We urge you not to buy a cheap article. Purchase your furnace of a well known dealer who has a reputation for delivering sound workmanship and materials and whose guaranty is backed by character and service. Consult your local architect.

HELP FOR THE MAN WHO WANTS TO BUILD

SAFE PLUMBING FOR YOUR HOME IS MONEY SAVER

Safe plumbing for your home is an absolute necessity. If leaks, breaks or freezeups occur after the piping has been enclosed by the walls, you may have no end of trouble and expense. Don't forget that a good job of plumbing is not only a safeguard for the health of your family, but a modern requirement for home comfort, convenience and sanitation.

No home can be called "modern" without provision for bath, lavatories, sinks, laundry tubs and adequate disposal for refuse. Homes without plumbing are difficult to sell. They are not considered as desirable property investment by people who loan money.

Two Things to Be Sure Of

The dollars you spend for your plumbing and fixtures represent a first cost. If your plumbing is well installed and your fixtures and system of quality standard materials, your plumbing should be permanent, your upkeep cost low. Leaks, breaks and "freezeups" are preventable if, when your home is built, the plumbing is properly installed.

Just because most of your plumbing is covered by walls and floors is no reason why you should underestimate the importance of the plumbing work. The fact is you need to know some of the main things about plumbing—what to expect from it, what kind of fixtures to install, their respective merit and service, if you hope to spend your dollars wisely.

There are two important things about plumbing to be sure of. First, that your fixtures and system are quality materials. Second, that the work of installing them is done by first-class plumbers.

Plumbing System Like a Railroad

Most plumbing material is standardized. Your installation will vary, depending upon the type and kind of fixtures you select. Rough plumbing requires pretty much the same kind of materials, although the workmanship can be neglected here and there and your system weakened.

The plumbing system in your home is like a railroad system. There is a main line with branch or connecting lines all leading to a terminal or depot. The main line is a four inch pipe, usually of cast iron, which extends from the basement through the bathroom up to and through the roof of your home. At the bottom of the pipe, in the basement, there is a connection with either a sewer opening or septic tank to take care of all discharge from your plumbing fixtures.

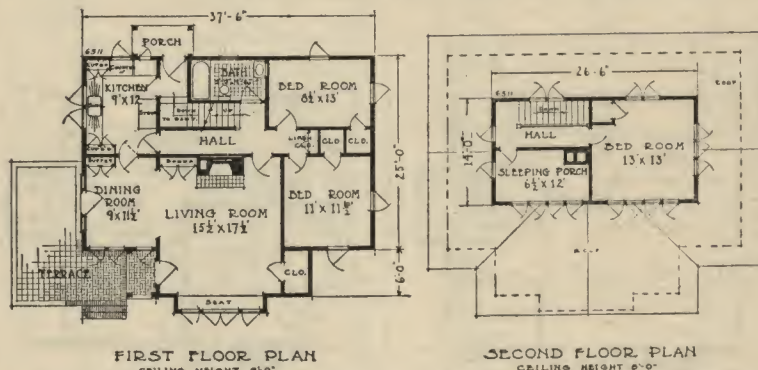
This pipe is known as the "stack." It projects above the roof not more than a foot. It is open to the weather, and permits a constant flow of fresh air through the pipe. This provides ventilation for your plumbing system. It is desirable not to have stacks slope more than 45 degrees. Usually they are vertical. The reason for this is plain.

Future articles to appear in this column will tell how to avoid freezeups and make plumbing safe, sanitary and satisfactory.

Airplane Bungalow Popular



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The airplane type of house derives its name from the fact of the similarity of the roof to the wings of an airplane. The roof is low pitched and covered with canvas with prominent ridges, which increase the likeness to the airplane. The projection of the cornice is surmounted with a large cupola, which again resembles the cabin of the airplane operator. While this type of house has been popular for some time on the west coast, it is gradually making its appearance in other sections of the country.

The house shown here provides five rooms and a bath on the ground floor. The upper story offers a bedroom and sleeping porch to be finished off if the home builder desires.

This home will require a rather wide lot, and, in an attempt to get the features of a bungalow with two bedrooms on the first story, it has been necessary to spread the house over more ground area.

In many ways this home combines the virtues of a bungalow with the convenience of a two story house.

Instead of the type of roofing as shown in the illustration, shingles or tile may be used if the home builder desires and if climatic conditions demand.

The first floor is compact in its arrangement. The abundance of windows permits plenty of sunshine and air. The living room is a real one. A fireplace on one side and a bay window opposite are features. The living room has an entrance upon a grassy terrace. You will find plenty of closet room in this house. The kitchen has been planned to economize steps and save labor. The ice box is provided with outside icing door. A full basement extends under the house.

One advantage of this house is that the bedroom which adjoins the living room can, if the owner desires, be converted into a living room extension, thus increasing the living room quarters 11 feet.

This type of home is not only distinctive in its design, but there are many places where it can be used successfully in cities, towns, or as a lake home.

The estimated cost to construct this house complete, including heating, lighting, plumbing, ready to live in, will range between \$7,000 and \$8,000, depending upon equipment. This cost can be lessened by using inexpensive equipment, or it can be increased by the installation of expensive fixtures. Without finishing the upper floor considerable savings can be made.

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Q—We are about to build our house and do not know whether to make the garage a part of the house or to build it separately. What is your advice about this?

A—A garage built as part of the house will generally be more expensive than one built separately because the former has to be constructed of fireproof materials. Most cities require that garages attached to dwellings shall be cut off by means of fireproof walls and concrete floor and ceiling slabs. This, of course, adds to expense. A detached garage does not have to be built in this way. An attached garage can be more readily heated and is more convenient than the detached type. It is very difficult to treat the attached type so that it looks well with the rest of the house.

Q—The brick coping on the terrace around my porch is continually coming off. Is there any way I can build this so as to have a permanent job?

A—This is a detail which requires very careful workmanship with high class materials. The mortar must be made very rich and the joints smoothly pointed. The top course of bricks must be pitched so that water will run off freely. If the coping is made of bricks laid on edge rowlock fashion the corners should be constructed especially well. One good method is to lay the bricks flat at these places.

Q—Is it safe to give up the title of my property in financing my home?

A—In building a home by the contract for deed method, it is customary to pay down a substantial sum as a first payment. This payment frequently is made by assigning the title of the lot to the one who loans the money, the value of the lot being credited on the contract. One agrees to pay at monthly intervals thereafter other definite sums of money sufficient to pay interest charges and to reduce the principal borrowed sum down to a point where a first mortgage can be floated. When this point is reached the title is made over to the borrower. The contract provides, among other things, that a default in the monthly payments nullifies the contract and that the sums paid on account up to that time shall accrue to the person to whom the contract was given, that is, the money lender, as liquidated damages. Of course you have a right to sell your contract, if you can find a purchaser, and of thus getting your equity out. In case of prolonged sickness, or lack of funds for any reason, you might have to sell. Remember that you do not secure a title to your home until you have paid up the definite sum of money provided for by the contract. You are more or less safe in giving up the title to your property as a first payment on a contract for deed depending upon your ability to go through with the contract. Deal only with persons known to you as being trustworthy and who have a reputation for fairness. Do not overestimate your ability to save.

HELP FOR THE MAN WHO WANTS TO BUILD

HOW TO AVOID "FREEZEUPS" OF YOUR PLUMBING

"Freeze ups," no doubt, give home builders the most trouble. If your home is built where winter weather is mild, you will have little to worry about. If you are located where sub-zero weather is a certainty, you will want to be sure that your plumbing system is "freeze up proof."

To avoid "freeze ups" don't run pipes within an outside wall. If the location of your bathroom is on an outside wall and it becomes necessary to run pipes "next to the weather," use some good standard antifreeze pipe covering. Be sure that all short bends and angles are eliminated.

When to Insulate Plumbing

If your basement is cold, you may have to insulate your pipes. Sometimes openings beneath floors, connected with smaller openings to the weather—due to failure on the part of the carpenter or other workmen to plug tiny holes leading to the outside of your home—cause "freeze ups." Watch out for these things. They are small, but important.

If there is the slightest doubt in your mind about possible "freezing," be sure to insulate your pipes and all parts of the plumbing system exposed to cold. It is possible to purchase what is known as "frostproof" waterclosets for homes located in the country where closets are placed in cold rooms.

The Kinds of Plumbing Fixtures

Generally speaking, plumbing fixtures are made in three kinds: Enameled ironware, vitreous ware, porcelain. Their respective first costs are indicated in the order they are named.

The following suggestions may prove helpful to you in selecting plumbing fixtures. They are not specifications. They indicate, however, a choice by a large number of small home builders: Bathtub, enameled ironware; washbowl, vitreous or enameled ironware; kitchen sink, enameled ironware; water closet, vitreous ware; water closet tank, vitreous ware; laundry tubs, enameled iron, cement or soapstone.

The durability of enameled ironware depends upon the thickness of the enamel baked upon the iron. A good thick enamel will give indefinite service.

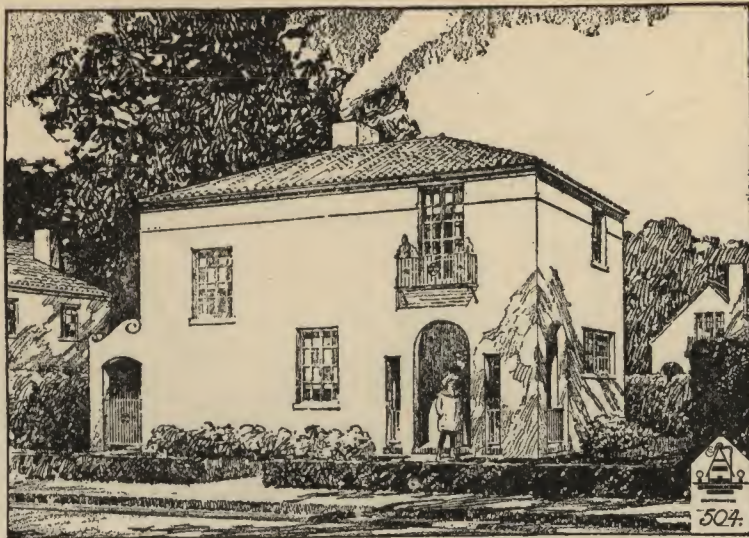
The traps, cleanouts, faucets and exposed parts of your fixtures are important from both a service and economy point of view. These fittings are made of brass. Brass costs money, depending upon its thickness. Remember, it is better to buy plenty of metal rather than too little. A good heavy fitting will give you longer service and in the end cost less.

Probably no plumbing fixtures are used more than your water faucets. See to it that only the best faucets are installed. Nickel plated fittings are generally used. Remember that the thicker the nickel, the higher the cost and the longer the service.

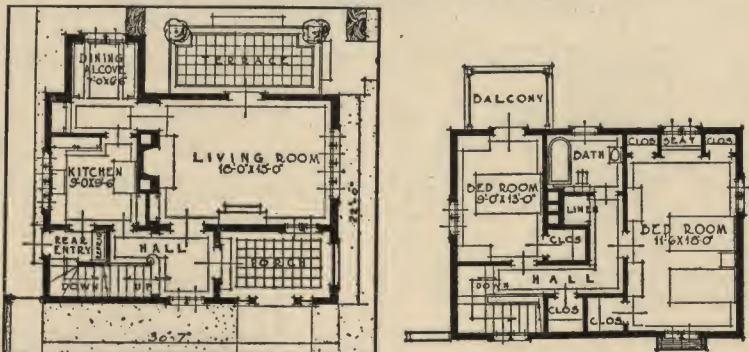
Some fixtures, such as bathtub washbowl faucet handles, are made of china, which give good service if used with ordinary care.

There are ways to cut costs and lower building expense far more practical and easily accomplished than to cheapen the initial cost for a good plumbing system.

Stucco on Hollow Tile Home



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THIS five room home of distinctive appearance and compact plan is designed to be erected of stucco on hollow tile construction. The style is based on Italian precedent and is featured by plain wall surfaces, a close cornice, arches over the main entrance, a wrought iron balustrade and tile roof.

The outside dimensions of this house are 30 feet, 7 inches wide, 22 feet deep. The exterior walls are six inch tile, covered with floated finish, cream stucco. The roof is variegated Spanish tile, while the exterior woodwork is painted dull blue. This colorful scheme adds distinction to the general lines and character of the house.

Entering the hall through the porch you obtain a glimpse of the living room which is large and spacious, with a beautiful fireplace and a group of four windows on the opposite wall. French doors open onto the garden terrace.

Opening directly from the kitchen is a compact dining alcove overlooking the garden. Built in features of the dining alcove, in addition to the table and wall benches, include a recessed china closet. The alcove provides for a very compact arrangement and is popular for the reason that it offers every advantage of a dining room and takes up very little floor space. It reduces the cost of building and lessens housework. The efficiently planned kitchen is reached through a rear entry which also leads to the basement.

The second floor includes two large bedrooms, one of which extends the entire length of the house, with light on three sides. There is ample closet space in both bedrooms. A large linen and clothes closet opens from the hall.

The cost of erecting this house complete, including heating, lighting and plumbing will vary depending upon location and the equipment.

The cubic content of the house is 20,065 feet. This house complete, built according to the plans, ready-to-live-in will estimate between \$7,000 and \$7,500. Expensive equipment will increase the cost, inexpensive equipment will lessen the cost. Substitutions can be made, if the home builder desires, which will lessen the cost. For example: Composition shingles can replace the tile roof. The house can be constructed of frame with stucco on metal lath. Basement partitions can be eliminated.

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Q—Which is the best way to heat water, by means of a gas water heater or by means of a coil in the furnace?

A—We recommend a combination of these for small homes, the furnace coil being for winter and the gas coil for summer use. The furnace coil is not an efficient device, especially in larger dwellings, but it has desirable qualities for smaller installations.

Q—I have read in a recent article published in this column that I could obtain forms of agreement or a contract which is considered standard and legal. I would like to know where this contract is obtainable.

A—The Architects' Small House Service Bureau, which conducts this column, prepares forms of agreement which are in every way legal and permit you to write a contract with your builder or either a straight contract basis or cost plus. This paper will be glad to supply these contracts to you for a nominal charge of 15 cents.

Q—Will you be good enough to advise us what the cost is to properly plant a small home? Our house is located on a 60 foot lot. It faces the east. The lot has a depth of 120 feet and is practically level. There are a number of trees at the rear of the lot.

A—The cost for planting your home need not be large. The result will more than offset the money you spend through increased land value, provided you plan and plant wisely. Perhaps you can do most of the work yourself. We would suggest that you decide upon a well thought out plan before you begin your planting. Follow the plan to completion even though a year or two pass before your home gardening efforts begin to show permanent beautiful results.

Things that will influence your home planting are the climatic conditions, character of your home, size of your lot, available hardy plants and shrubs. Don't permit your planting to obstruct the sunlight and ventilation of your home. Remember that successful home gardening aims to tie the house and landscape into a complete and beautiful picture, and remember that your back yard offers as many possibilities as your front yard. Think of the yard as an out door room.

Shrubby and flowers are considered ornaments and look best when they serve as a decoration against the house or boundary line. Windows should not be shaded. Looking from the side of the house out each window should frame a nature picture, nicely composed and complete within itself.

We will be glad to recommend to you a list of suitable books which will assist you in the elementary principles of proper home planting.

HELP FOR THE MAN WHO WANTS TO BUILD

SATISFACTION IN PLUMBING COMES IN TIGHT JOINTS

The plumbing system for your home will be no stronger than its weakest joint. It is essential that the vent stack be absolutely tight from top to bottom. Joints that leak are apt to allow gas and foul odors to enter the living rooms of your home. Joints where the plumbing fixtures are connected with the stack must be tight in every respect.

The stack should be properly flashed, which means that where the pipe projects through the roof some protection must be made to prevent roof leaks and water seeping through the ceilings below. Usually, sheet lead is bent around the stack pipe and brought down over the shingles. This lead is turned back into the pipe opening. It is possible to buy readymade sheet metal flashing in shape and size to fit your stack pipe. In cold climates, protection against frost usually is provided by a "frost jacket" at the roof level.

Look Out for Stack Pipes

An important thing to remember about stack pipes is that the stack should not project through the roof near a second story window. There is possible danger of sewer gas blowing back into the bedrooms and endangering the health of the occupants.

Your plumber will caulk all the castiron pipe joints, first with oakum, and then pour hot lead over the oakum, producing a tight and leakproof joint if the work is well done. After all joints have been made tight, the piping is tested for water leaks by plugging both ends of the system and filling it with water or air and watching for leaks.

To prevent sewer gas and other odors from backing up into the rooms, traps are placed at the bottom of the fixtures. These hold a certain amount of water. The water is a part of the drainage from the fixtures. It is held to a certain level in the trap by a bend or "S" shaped curve. It thus provides a seal between the stack and the house and is a gas preventive.

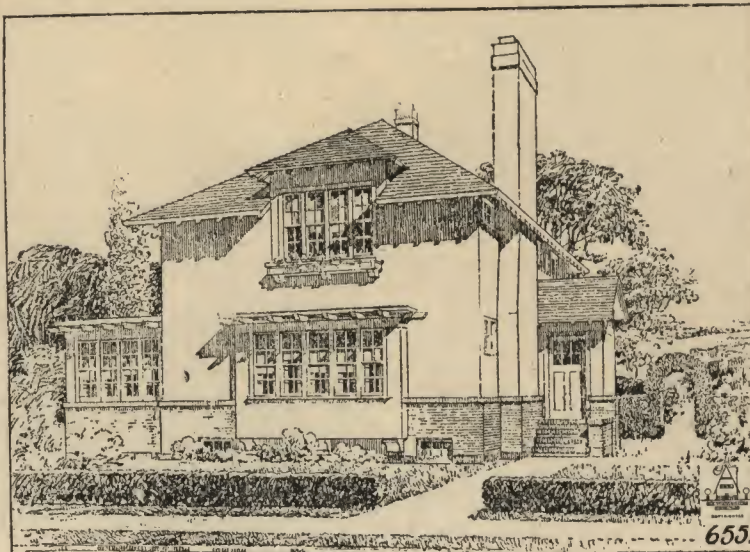
Grease is one of the things which require traps being cleaned more often than otherwise. Grease in soap flows through the pipes and when chilled is deposited on the sides of the pipes. Dirt added to grease, produces an obstruction. Sinks back up and require flushing. Grease generally is the primary cause.

Why Grease Obstructs Pipes

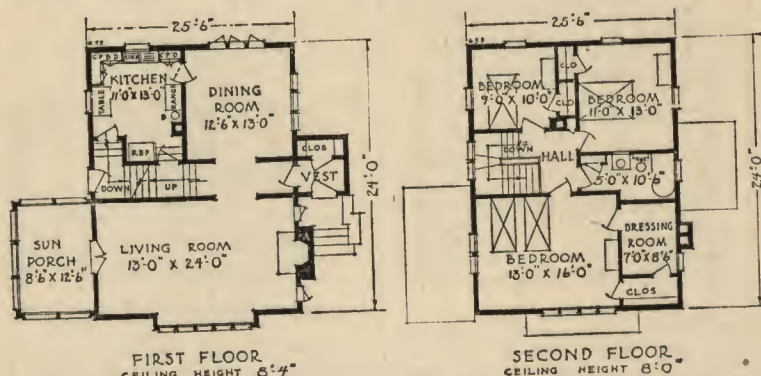
Kitchen sinks can be provided with grease traps to catch the grease and take it from the water before it reaches the cool pipe to grow hard and obstruct the easy emptying of the plumbing system.

Your plumbing system should be provided with cleanouts, located conveniently, where flexible rods or wires can be used to remove obstructions if they occur. Cleanouts should be absolutely tight. They are just as much a part of your system as the stack and fixtures.

Full Two Story—Moderate Cost



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This two story house is an unusually fine example of a comfortable, well designed, truly American home. It is a pleasing variation of the popular rectangular house and should be built at a reasonable cost.

The home has frame walls, brick veneer to the height of the first floor window sills then stucco to the roof, shingle roof, brick chimney, outside front steps and posts of brick. The plan provides a full basement. Outside dimensions are 26½ wide, 26 deep.

Because of the sunporch the house will require a 50 foot lot. With the entrance at one side it is possible to devote the entire front of the house to a living room.

Observe the roomy coat closet in the vestibule, the dual purpose stairway serving both the kitchen and front of the house, and the finely proportioned hall between living and dining rooms. A cased opening separates the hall from the living room, and double French doors between hall and dining room. High casement windows in the rear of the dining room permit wall space for a serving table or buffet.

A handsome fireplace dominates one end of the living room. Every lover of sun and fresh air will appreciate the sunporch which is separated from the living room by a full length glazed door.

One large bedroom extends across the full length of the house. It has so many windows that it is practically a sleeping porch. Opening from this is a smaller room with outside window. This might be used as a child's bedroom, dressing room or sunroom. The other bedrooms have windows on two sides and good clothes closets.

The approximate cost is \$7,500. Savings can be made which will lessen the cost if the home builder desires. The cost will vary in different localities, also depending upon the equipment the home builder selects.

In localities where ordinances require brick or masonry walls the exterior of the house can be changed to meet such conditions.

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Q—In signing a contract with the builder for the erection of a home, should we also sign our name to plans and specifications?

A—When contracts are signed it is a good idea to have your builder write his name on a number of the plan sheets and specifications, also sign your own name. Do this as a measure of protection in the event that anything should come up that may involve settlement of dispute by the courts. The first thing the court will ask you is to prove that the plans and specifications are the original documents. Signatures by your builder and yourself will prove this point.

Q—We have just undertaken a remodeling job on our house which is more than 20 years old. The sills have to be cut out and new ones put in place because of dry rot. Will you explain why dry rot occurred in the sills?

A—This is a common defect in old houses usually caused by excessive dampness with no circulation of air. Frequently a builder takes great pains to fire stop his walls around the sill and forgets to leave ventilation space, and the sill is soon attacked by the fungus of rot. Unless timbers, which come in contact with masonry, are treated with creosote or painted they will be subject to dry rot in the average damp, warm climate.

Q—In letting a contract is it considered necessary at all times to award the contract to the lowest bidder?

A—If you have invited a group of contractors to bid on your house and they all submit proposals, based upon the same plans and specifications, it is customary to let the contract to the lowest bidder. If, however, quite a number of contractors ask the privilege of estimating on your house, it is not necessary to follow this custom, in fact, a well prepared set of specifications includes the following clause: "The owner reserves the right to reject any and all bids." Contractors and builders understand that the lowest bidder may not be the one selected to erect the home.

Suppose only a few dollars separate the lowest and the highest bid. It may be worth while to let the work to the highest bidder even though the cost is somewhat increased. The human element that enters into home building is so important that you should not permit a few dollars to stand in the way of assuring your home being honestly built.

HELP FOR THE MAN WHO WANTS TO BUILD

GOOD INSULATION VITAL NEED IN HOME BUILDING

You cannot get around the fact that some houses are cold and draughty, while others of much the same size and appearance are warm and comfortable. Everybody knows that second floor rooms in some houses are hotter than bake ovens in summer, while in other houses of much the same size are cool and comfortable even in the warmest weather.

These facts often puzzle prospective builders or buyers of homes who may wonder how they can obtain a comfortable house, not requiring excessive attention and a lot of money to heat, and in which a cool summer night's sleep can be assured.

The Reasons for Insulation

If you want a cool house in summer and a warm house in winter, you ought to post yourself on the many elements that enter into getting these results. First of all, your home must be well built. The windows and doors must be tight, and the walls constructed so that air will not pass through them freely. You must have a good heating plant, designed to supply heat where it is needed and in proper proportion to the size of the rooms and their exposures.

Another requirement has to do with the planning of your home. Open stairways, along outside walls, form natural passages for currents of air. Because the outer wall is colder than other walls, the air lying against it chills more rapidly than elsewhere. Consequently, the air drops. A stairway of this kind, opening upon the living room, is sure to make that room draughty. There are many details of this kind.

Finally, and certainly of equal importance is the matter of insulation. You cannot expect that your home will not be full of draughts if the outside walls are cold. With insulation in these walls, you will avoid much of the discomfort that comes from the rapidly changing temperatures.

Dead Air Spaces Stop Cold

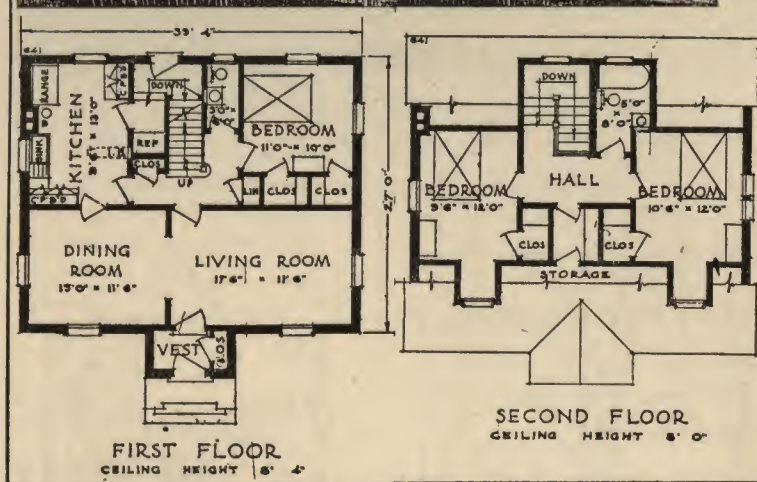
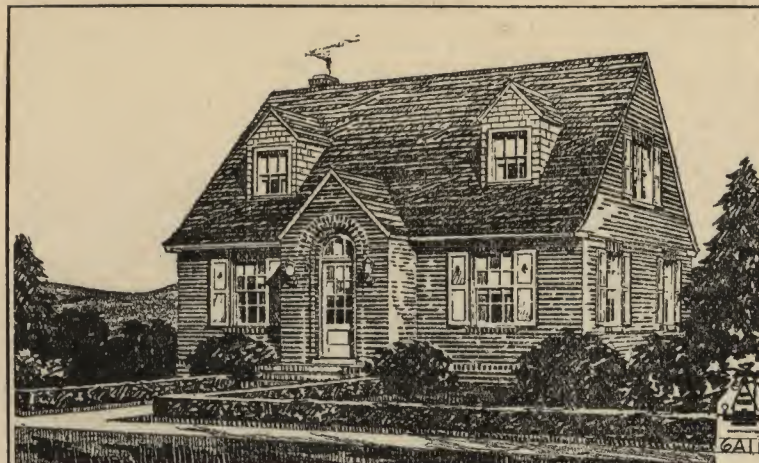
The way to obtain a comfortable home, from this point of view, is one of the simplest details of building. Careful builders insulate their homes. That is the whole story. They require that a standard insulating material be placed in the outside walls and the second story ceilings, or upon the inner surface of studs and ceiling joists. This insulation, containing as it does, millions of tiny dead air spaces, is largely responsible for stopping the cold from coming in and the heat from going out.

The need of some material, designed to prevent the passage of heat and cold through walls is as old as the art of building. In the sturdy homes of the first New Englanders, you will see the fore runners of the modern insulating materials. "Wattle" and "damb" construction is found in many of these homes. The space between the timbers or studs was filled with a mixture of modern straw to keep out the cold.

It is certain, too, that the old practice of building a home in vertical layers, that is to say, covering a stone house with wood as an exterior finish or as an interior furring, was simply to give greater cold resistance to the walls.

Later on back plaster became one

A COMPACT BRICK HOUSE



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THERE is a compactness about the plan and a simplicity in exterior design of this six room brick house that should make it reasonable to build. One way, in which considerable savings are effected, is by not having overhanging eaves and expensive cornices. The close eaves give a certain trim, clean cut look. The arched entrance doorway is in good contrast to the pointed gable above. The graceful curve of the arch softens and relieves the otherwise straight lines.

It will require a 43 foot lot for this home, which is of frame construction, brick veneer, shingled roof and shingled dormers. There is a brick platform and steps before the vestibule. The house can be built of stucco on metal lath, or siding, if the home builder prefers.

The interior arrangement of rooms provide an informal, livable, spacious home. The dining room and living room are separated by an arched doorway, which increases the apparent size of both rooms. The kitchen is small, but planned for labor and step saving. It has cross ventilation and light from two windows. The icebox is in the rear entrance. A full basement, includes fuel, heating, vegetable, laundry and drying rooms.

There is a lavatory and linen closet on the first floor. Two spacious bedrooms and bath occupy the second floor. Each bedroom has cross ventilation and a commodious closet. There are eight closets and storage space in this house.

The cost to erect this home complete, according to the plan, ready to live in, including heating, lighting and plumbing, will range between \$6,500 and \$7,500, depending upon equipment and location. Simple equipment will lessen the cost.

For a compact, straightforward home, of good architectural lines, it is difficult to improve upon this plan.

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of the essentials of good building. Until recent years, all good houses, especially those in regions where winters are severe, were protected in this way. The contractor cut in the lath between the studding, and put an extra coat of plaster half way between inside and outside walls.

Manufacturers of modern types of insulation claim more efficiency and certainty of results than over the old way.

This is the first of a number of articles to appear in these columns on "Insulation."

WHAT YOU MAY WANT TO KNOW ABOUT BUILDING

Questions addressed to the paper will be answered by the Architect's Small House Service Bureau of the United States, Inc., controlled by the American Institute of Architects and endorsed by the Department of Commerce, United States Government. In close self-addressed envelope for reply.

Q—Will painting the inside of foundation walls with waterproofing paint or compound make them waterproof?

A—Such paints and compounds applied to the inside of solid masonry walls do some service in preventing moisture from coming through the wall. It is better to put waterproofing compounds on the outside of the wall for plaster does not adhere well to them. However, the wall surface may be made damp through the gathering of condensation which comes from a cold wall and a moist condition of the air in the basement.

Q—Where should the top of a house be insulated—between ceiling joists or between the rafters?

A—If the attic space is not intended for living quarters the insulation should be placed between the ceiling joists of the second story. If the insulation is placed between the rafters, there will be heat loss through the second story ceiling to warm the attic space. If the rafters break through the second story ceiling, as they do in many Dutch Colonial houses, the spaces between the rafters should be insulated.

Q—What is back plastering? How does it take the place of insulation?

A—Back plastering is a sheet of plastering applied on laths cut between the studs. It thus lies against the sheathing boards. This does not take the place of insulation. It is insulation. However, it is generally less efficient as such than an equal thickness of the many materials made of grass, hair, fiber, and other vegetable matters which are specifically designed for insulation.

Q—What is the difference between two coat and three coat plaster work?

A—The first coat of plastering termed the "scratch" coat is pressed into the lath so as to form a key. This coat and its "keys" are responsible for holding the plaster plane on the wall. The second coat is the "brown" coat—so called because it is less rich in cement than the scratch coat and is therefore brown in color. This may be rubbed down to a sand coat finish or it may be painted giving a type of two coat work. The third coat is the "putty" coat. This is a mixture of rich lime plaster with about half its volume of gypsum. This coat may be applied immediately upon the scratch coat without the brown coat for a very satisfactory type of two coat work. It may be used in residences with slight sacrifice to desirable qualities and with considerable economy. Where rigidity is not important two coats are sufficient whether made up of the scratch and brown coats or of the scratch and finish coats.

HELP FOR THE MAN WHO WANTS TO BUILD

BRICK HOUSES PROVE DURABLE AND ECONOMICAL

The use of brick in America started when the Pilgrims began to build permanent houses for themselves. Bricks were brought over from England as ballast for the ships. Throughout New England can be found numerous examples of buildings erected from this material and now in good repair after centuries have passed. Our natural wealth of high grade brick making clays was very quickly discovered, and the industry has been developed so that it now is one of the most important industries of the nation.

The Cost of Brick Homes

The use of bricks in home building is reported to be greatly on the increase. Even the smallest homes are being built of this fine material. Brick manufacturers claim that when a house is built on the instalment plan, with payments running through several years, that by the time all instalments have been paid on the house and the title clear, brick houses actually cost less than painted houses, counting the cost of upkeep up to that time.

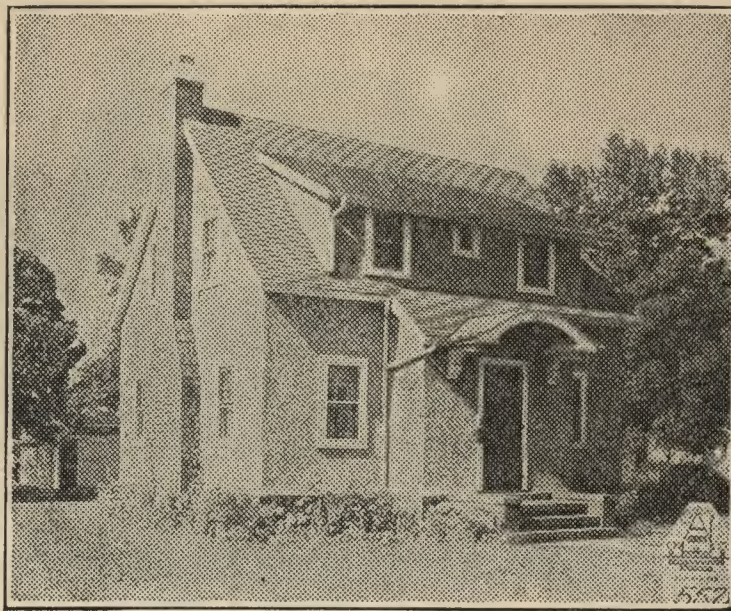
The beauty of brick work is distinctive. If bricks are properly laid in walls with mortar joints suitable to the kind of brick used, an attractive wall surface can be obtained which will have qualities not shared by any other material. The wall is comprised of small units which have an infinite gradation in color. This is caused by slight differences in the chemical composition of each brick and by the varying heats to which the brick units are subjected in burning. This produces a surface full of life and interest, and if the colors are well selected and the bricks of proper size and texture, a particularly effective and harmonious result is obtained. A wall such as this, set up with high grade mortar with bricks that are well burned, will deteriorate very slowly. In this way, a brick house forms a very safe investment for the lifetime earnings of the family.

Mortar Joints Important

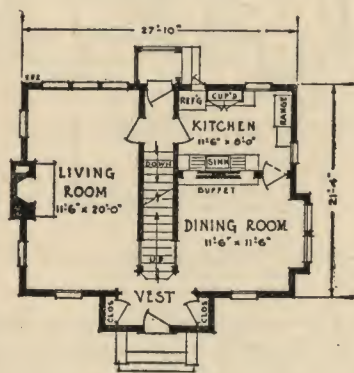
In selecting brick for use in your home, do not try to do this from the appearance of a few loose bricks. It is well known by architects that the mortar joint is as important in the appearance of a brick wall as the brick itself. This is especially true if color is not used in the mortar joint. The mortar joint emphasizes the particular kind of bonding used in laying the bricks. This shows the pattern of the brickwork. In order to best judge the appearance which any particular brick will exert in the wall, it should be laid up with a number of other similar bricks in the kind of mortar which is to be used. In this way you can observe the effects obtained by varying the width of the mortar joint and the arrangement of the bricks.

Properly designed, a brick house can be of extraordinary beauty. It will be a source of pride during a man's lifetime and an economical building for him in which to invest his savings.

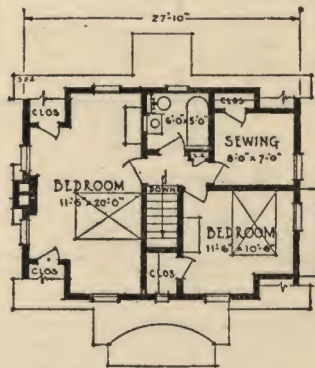
FIVE ROOMS—UNUSUAL VALUE



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FIRST FLOOR
CEILING HEIGHT 8'-4"



SECOND FLOOR
CEILING HEIGHT 8'-0"

IF YOU are interested in compactness of plan and want maximum space at minimum cost, if you are interested in a home where every inch of space is used to maximum advantage, then this plan will merit careful study. It can be erected on a 40 foot lot and because of its straightforward simplicity both in design and construction it is an economical home to build and maintain.

Type of house—story and one-half. **Style**—English cottage. **Suitability**—adaptable to all regional and climatic conditions. **Size**—five primary rooms, sewing room, bath, full basement. **Dimensions**—27' 10" wide by 21' 4" deep. **Ceiling height**—first floor 8' 6", second floor 8'.

Exterior treatment—frame construction, stucco on metal lath; face brick veneer to first floor grade; front steps brick; roof shingles, either wood or composition.

Features of the home—reception hall provides arched openings into dining and living room and a partially open stairway. Dining room contains beautiful bay and a handsome buffet. This buffet extends through to the kitchen. On the kitchen side it is a cabinet with a sink placed between cupboards. Doors to the cupboard open from both the dining room side and from the kitchen. The housewife can put her clean dishes on the cupboard shelf and when it is time to set the table remove the dishes from the dining room side. This kitchen is a model in plan and labor saving.

The second floor contains two good bedrooms and a sewing room, also a bath, all provided with adequate light and ventilation.

Cost of house—this is an economical home to erect. It follows the square plan. It should be built complete, including lighting, plumbing, heating, painting, ready to live in at a cost ranging from \$6,500 to \$7,500, depending upon the equipment used. In some localities this home can be built at a less figure than the lowest quoted, provided the home builder is willing to eliminate certain features which in no way will lessen the comforts, conveniences and substantial construction of the home.

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Q—What are the important things to watch for when the frame work of a house is being put up?

A—This is a very important period in building. Unless the work is well done you cannot hope to have a substantially built house. Unless the workmanship and materials are correct you will have depreciation costs which will be very much too great. Be sure that the framing materials are of good clean stock without defects which will seriously affect the strength and that they are put in securely on the bearings which have been designed for them. It is very easy to put in two nails where four should go. See that the specifications are followed. In the type of construction which we are using today, known as balloon framing, there are a large number of very small parts. Studs, joists and rafters are made of comparatively small members. Unless they are securely braced together the building will not be substantial. This means that the joist and bearing partitions should be bridged. There should be subflooring and ceiling securely nailed to each joist or stud, and the whole system should be made as nearly like a unit as possible. The first step of this whole thing is to get good plans and specifications, and the second is to get an honest contractor who knows his business.

Q—In what way does fire stopping make wooden houses more fireproof? If you use wood in the same way with fire stopping as you do without it, I do not see how this can make the house less easy to burn.


A—The purpose of fire stopping is to cut off the vertical ducts or flues in the building which are made by the open spaces between the framing members, especially the studs. If these spaces are left at the bottoms with a material which will not burn, you will see that fire could not pass this material so as to get between the studs and create a fire between the structural members. The principle is not to make the wood less inflammable but to restrict the fire to a definite area where it can be controlled in some measure until the fire wagon comes. One of the best ways to avoid fire in your house is to keep rubbish from accumulating. Do not allow wastepaper and other rubbish to accumulate in the basement, closets, and attic. Do not use electric wiring to hang laundry on. In some countries it is a misdemeanor, punishable by a fine and imprisonment, to have a fire start in your house. The waste which is occasioned by fires in small homes is appalling. An organization known as the National Board of Fire Underwriters has been set up to reduce this waste. Their recommendations are that fire stopping be used in frame building.

A Word of Explanation
About
The Building Costs Shown on the
PLANS
Appearing In This Book

THE costs of construction quoted in connection with the houses which appear on the pages of this book are in each case based upon the general average for the entire country.

In studying these house plans and their costs, please remember that building costs vary in different localities and sections of the country, depending upon local market conditions, cost of materials, and labor.

In certain localities where costs are high, the highest figure indicated on these plans will be too low. In other localities, the lowest figure quoted will be more than sufficient. The range between the lowest and highest figure shown on each plan is given to cover the difference in quality of material and degree of equipment. Remember that your total building costs depend largely upon what you select and what you specify. Expensive equipment will increase your costs,—inexpensive equipment will decrease your cost.



What Do You Want To Know About Buying or Building A Home?

*Ask the New York American's
"Service to Homeseekers" Dept.*

The service of this department is free and will prove invaluable to American Readers who desire impartial, accurate information on buying and building problems.

House plans, information on available home sites, practical methods of finding and financing a home, and real estate counsel are offered without obligation to you.



Direct inquiries by mail to "Service To Homeseekers" Dept., Room 249, 1834 Broadway, New York City.

You are invited to call at the above address between 9 A. M. and 4:30 P. M. daily except Saturday. Office open until noon Saturday.

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